NORMAN'S
UNIVERSAL CAMBIST
1897

MONEY'S WORTH
1899

BRITISH INDIA'S FUTURE
STANDARD CURRENCY
1898

ETC.

To Professor Goldwin Smith.
from the Author.

With his kind regards & Best wishes.

Also—

With high appreciation of, & Grateful thanks for, the learned Professor words for blaming his commendation of the writers "Science of Money" issued in May 1896.

October 21st 1899

NORMAN'S
UNIVERSAL CAMBIST
1897

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STANDARD CURRENCY
1898
ETC.

The Author recommends that pages 129 to 136 should be read first.

The teaching and the concrete cases in the book should, in the main, enable the reader to give "Yea" or "Nay" to the suggestions in these pages.

Mechanism of the Interchanges of Things, pages xv, 13, 23, 45, 83, 114, 129.

Money, xvi, 3, 7, 132.

Bi-Metallism, 5, 135.

Education, xii, 1, 23, 38, 64, 116, 130, 136.

NORMAN'S

UNIVERSAL CAMBIST

WITH

AN EXPOSITION OF THE WORLD'S PRESENT MECHANISM OF THE INTERCHANGES OF THINGS.

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NORMAN'S UNIVERSAL CAMBIST

A READY RECKONER

OF THE

WORLD'S FOREIGN

AND

COLONIAL EXCHANGES

OF SEVEN MONETARY AND CURRENCY

An Eminent Economist's Opinion

UPON

NORMAN'S UNIVERSAL CAMBIST.

"I regard NORMAN'S CAMBIST as the best (perhaps the very best) exposition of the nature, origin and the use of the money by which the world effects its exchange of commodities which has ever been, or is likely to be, written and published. It ought to have place in every well-constituted library."

(PROFESSOR THE HONORABLE) DAVID A. WELLS,
NORWICH, CONN., U.S.A.

January, 1898.

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LONDON
EFFINGHAM WILSON
ROYAL EXCHANGE
1897

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C

N84264.2

NORMAN'S UNIVERSAL CAMBIST

A READY RECKONER

OF THE

WORLD'S FOREIGN

AND

COLONIAL EXCHANGES

OF SEVEN MONETARY AND CURRENCY INTERMEDIARIES

WITH THE AID OF LESS THAN

60,000 FIGURES

WHEREBY

736 TABLES OF EXCHANGE, CONSISTING OF FROM 13,800 TO 200,000 FIGURES EACH, CAN BE DISPENSED WITH; ALSO FURTHER AIDS TO THE CONSTRUCTION OF THE SCIENCE OF MONEY SINCE 1892, BEING THE SECOND EDITION OF THE AUTHOR'S READY RECKONER OF THE EXCHANGES OF GOLD AND SILVER ISSUED IN 1893

BY

JOHN HENRY NORMAN

OF THE LONDON CHAMBER OF COMMERCE; EXPERT IN THE SCIENCE OF, AND PRACTICE WITH, MONEY

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LONDON

EFFINGHAM WILSON

ROYAL EXCHANGE

1897

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"MONEY'S WORTH."

A COMPLETE GUIDE FOR TRAVELLERS AND DEALERS.

Students of the Science of Money, Experts in the Foreign and Colonial Exchanges, Financiers, Bankers, and Traders testify to the adequacy of this work to enable all sensible youths to understand and practise the interchanges of moneys and currencies, and of all other things in civilised and between civilised and semi-civilised communities.

NOTICES OF THE WORK.

"Very many thanks for your most interesting and learned treatise, which is the result of much economic research in a field which requires great powers of intellect."—Lord REAY, *Chairman of the London School Board*, June 29th, 1899.

"I entirely agree with Lord Reay in his commendation. In the present day it is becoming more and more necessary that the child should, if possible, possess a substantial and accurate, although not necessarily minute, knowledge of economics."—Sir RICHARD TEMPLE, August 19th, 1899.

"Allow me to thank you for the interesting and instructive papers which you have kindly sent to me. Having myself ventured a little way into the field which your works illumine I can appreciate their value to those whose needs or tastes take them there. In this country the money question, so-called, has got into politics, resulting in mental confusion, even among well-educated people, that I fancy is quite inconceivable by anyone who has not come into contact with the theorists who have been haranguing up and down the land, and printing their notions in our countless newspapers, for the last dozen years. *This* money question is, however, not that which interests you. Your point of view is like that which the sun might afford to an observer of the planetary system; we are scuffling with each other over elementary arrangements within our own particular sphere, which, as respects this subject, seems still in a nebulous condition. The newspapers are very generally rising into the clearer air, but the politicians cannot get their eyes above the mists."—Hon. W. L. TRENHOLM, Ng., U.S.A., August 30th, 1899.

"Very much obliged to you for sending me your valuable work, which I shall read with very great pleasure."—ALFRED DE ROTHSCHILD, Esq., September 7th, 1899.

"Your works represent a vast amount of thought and trouble on a subject which has been, hitherto, little understood by the people. . . . . There is no doubt that your studies have the serious consideration of all whose duty it is to investigate the various Standard Theories, and have long served to educate others as to the true meaning of the expression 'Money.' They also serve to hinder the spreading of certain erroneous theories as to the meaning of the expression 'Credit,' which have of late years been launched on Commissions appointed to consider the subject of Metallic Standards."—H. J. CHANEY, Esq., *Keeper of the British Standards*, September 29th, 1899.

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I. "Norman's Universal Cambist.' 1897.

II. The Author's Writings in connection with Money.

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IV. "British India's future Standard Currency." 1898.

V. "An Antidote to Bimetalism or local dual Standards." 1882. Approved by the late Stanley Jevons.

VI. "What is Money?" 1890.

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IX. "Description of show cases illustrative of the working of the Foreign and Colonial Exchanges of Gold and Silver." 1891.

X. "Mr. Henry Hucks Gibbs on Bi-metallism and the comparative cost of the production of Gold and Silver. Important questions for consideration." 1892.

XI. Facsimiles of 12 Gold and 12 Silver Coins. 1892.

XII. "Colloquy upon the Science of Money." 1889.

TO THE READER.

FROM the Author's early study of economics he had formed the opinion, owing to his want of knowledge of the world's different monetary and currency systems through which interchanges are carried out, that international and inter-colonial interchanges were all along conducted on the terms of barter. In 1895, from the study afresh of J. S. Mill's writings on the subject, he learned that Mill's dogma can be only true when the world possesses one intermediary, whereas at present there are seven. Students of this volume will notice that this discovery conflicts with views put forth by the writer previous to 1895.

He considers, on maturer consideration, that the true dogma has been arithmetically proved in his "Money's Worth" and "British India's future Standard Currency." In this last little work of thirty-six pages, based on thirteen tables of figures, mention is made of five descriptions of trade: Fettered, Free, Fair, Foul and Foolish, which could easily be explained. He has all his life been an ardent free trader. He now puts fair trade first and free trade second. And above all, *such trade as secures to each people an effective metal monetary system.* This appears tantamount, at least from one point of view, to the recognition of the soundness of the old mercantile system.

22, THE TERRACE, S.E.
September, 1899.

Dedication.

THIS SECOND EDITION,
WITH ADDITIONAL AIDS SINCE 1893
TO THE
COMPREHENSION OF, AND PRACTICE WITH, MONEY, ETC., OF
"A READY RECKONER OF THE WORLD'S EXCHANGES
OF INTERMEDIARIES,"
THE AUTHOR DEDICATES, AS HE DID HIS WORK OF 1892,
"THE WORLD'S EXCHANGES OF STANDARD METALS,"
WITH ALL RESPECT,
TO THE WORLD'S FIRST MAN OF SCIENCE
WHO IN THE FUTURE PRODUCES A SCIENCE PRIMER OF MONEY
SUCH AS WILL COMPEL THE WORLD TO ACCEPT
AND TEACH IT AS TRUTH.

EXTRACT FROM THE ANNUAL REGISTER OF 1797 PUBLISHED IN LONDON, BEARING ON THE INCOMPARABLE DIFFERENCE BETWEEN STANDARD MONEY AND TOKENS OF IT.

Gold and silver and other precious metals have a twofold value, a value intrinsic and a value conventional. They are valuable on account of their own qualities, and they are valuable as the signs and pledges of wealth. This distinction men learnt to make in the progress of commerce. And there was never an abstraction more curious in itself, or in common affairs more important in its consequences. The conventional or arbitrary value of gold and silver, the signs and pledges of wealth, has been taken off, has been abstracted from the solid metals and transferred to paper, a very flimsy and unsubstantial body, and which may be considered as holding a middle place between matter and spirit. It is not, however, the paper that is in fact the substitute for money, but something still more exile—the promise the act of mind stamped upon it—so that money has come to be, not so much a substantial or material as a metaphysical thing; and so easily multiplied, that the number of paper dollars in America, assignats in France, and bank notes in Great Britain, have almost exceeded calculation. . . . . But in this country, as in others, different causes occurred to remind the world that there was a wide difference between money that possessed an intrinsic value and money of the abstractest kind, which is merely conventional. A run was made on the Bank of England which threatened its ruin. Government intervened for its preservation, *and the minds of men began to be turned back from metaphysics to matter; from the sign to the thing signified.*

1897.—The first centenary of the Bank of England's suspension of cash payments through inability to exchange the standard substance promised on the face of the note for that instrument presented to it.

An Economist's Answer to the Question, How does Money do its Work?

"The work which money has to perform is to exchange commodities. . . . . Now arises the fundamental question which it behoves every man to grasp—yet how many can answer it? No man understands what money is if he is unable to see the answer. How does money perform its work? The tool-knife works by means of its sharp edge—it cuts; every one sees this instantly, but how many can tell how it is that money buys? It works by means of its worth, its value as a piece of metal. On this cardinal fact all understanding of what money is hangs. The whole battle with the bimetallists turns upon it. To buy is to exchange one thing for another on the basis of the value of one thing being equal to that of the other. But what is the quantity of value which each possesses? That is the critical point. In common life the value of a thing is held to be its price, what it will fetch in money; but the value of the money fetched is unexplained. We obtain that explanation by saying that the value of the money is calculated in the same way as that of the article bought. The amount of the money given is determined by the cost of producing the metal, precisely as the price of a coat or a loaf of bread is determined by what they cost to produce. The quantities of the metal and the commodity exchanged are regulated the same way. As Aristotle pointed out, gold, money, is chosen simply as one of many commodities. The cost of the production of gold or silver is the amount of goods of all kinds which the miner must have to induce him to get the metal out of the mine. As all commodities are exchanged for the same article, the precious metal, their several values are expressed in, are measured by the *value* of the metal of which the money is composed. Each has a price in money; their values can be compared with each other."

Extract from an address by the late Oxford Professor of Political Economy, Bonamy Price, LL.D., Edin., on Economy and Trade in 1882.

PREFACE TO THE SECOND EDITION.

In the pages of the "Banker's Magazine" of February, 1889, the writer endeavoured to awaken attention to the subject of money in the following words :—

"The world has no science of money. Not a day should be lost in preparing a science primer of money. I would that I could assist to stimulate the scientific men whose vision is not distorted by credit instruments, who possess an aptitude for the subject, and could easily acquire "a masterly skill in bullion and coin," in my own country, in the United States of America, in Germany, and in France, to accomplish this. Within ten years of the subject being taught with geography in the schools of the world and the issue of this primer, the utmost astonishment would be expressed at the present all but universal darkness which is over the subject, and the gross errors which flourish therein."

In 1894 the writer formulated a "Science of Money," "What it is, its conditions and laws. What it is not"; for which he received the thanks of Professor Goldwin Smith, who noted it as "a clear and useful little tract," and added these words, "If people had only taken the pains to get clear ideas upon a few very simple points, an ocean of controversy upon currency and economics generally might have been spared." This tract has appeared in various publications, and can be found on page 16 of this preface. In October, 1895, the teaching of J. S. Mill and Bagehot again came under careful consideration. In a letter to the "Banker's Magazine," published in the November 1895 issue of that journal under the title "The Currency Problem: is it false Political

Economy," and another to the "Accountant" of November 2nd, 1895, "International interchanges by means of barter and by means of monetary and currency intermediaries," the writer gave his views upon Mill's dogma; also in his contribution to the "Accountant" in a series of its issues on the "World's two metal and four other currency intermediaries," which contained the result of his investigations. The dogma of Bagehot, "That in the event of a fall in the price of silver in a gold standard country there would be a correlative rise of prices in silver standard countries," though fully expected by economists to take place in British India since 1873, has not occurred. The writer had pointed out to the Royal Gold and Silver Commission of 1886-9 that the absolutely necessary adjustment of prices had taken place by a fall in the prices of goods from India. This conflicted with the statement made by Sir Thomas, now Lord Farrer, in a minute of his own in the final report as follows:—"I wish to add, for the sake, not of dissent, but of distinctness, that I do not believe that the change in the relations between gold and silver currencies has lowered English prices." J. S. Mill's dogma is, "That the substitution of money for barter makes no difference in exports or imports, nor in the law of international values." The writer, in common with all economists, accepted this dogma as truth until his reconsideration of it in 1895. He then discovered that this can only be true upon the assumption that the whole world possessed one scientific automatic monetary system to consist of one monetary metal only as the universal standard intermediary and measure of value. In his memorandum, which is printed in the proceedings of the Royal Gold and Silver Commission, he formulated a concrete case of the interchange of piece goods from the British Isles to British India in exchange for wheat, thence to the British Isles at an altered ratio of silver to one of gold between the periods 1873 and 1887, giving the same prices of wheat and piece goods in British India for the two periods, and the actual alteration of the ratio between gold and silver to show that the lower prices of piece goods and wheat in the British Isles synchronized with

the altered ratio between the metals. No. XI. of his "Science of Money" is as follows: "Since experience shows that international interchanges accommodate themselves to any system of monetary or currency intermediaries, a country's primary object should be to possess a metal measure of value, and means of payment of such a quality as is practicable, which shall present over lengthened periods the most stable measure of value for the sake of the internal interchanges of the country, and the deferred obligations of the inhabitants. The secondary object is to possess the best substance with which to conduct their international interchanges. That substance which would meet the two objects of course is preferable." As the result of the conviction of the error of J. S. Mill's dogma in 1895, another article was immediately interposed in the "Science of Money," No. XII.: "The condition of interchanges between people inhabiting the continents and islands of the world should be carried out upon the terms of barter. The terms of barter are value-giving factors in this thing with or without the unearned increment for value-giving factors in that thing with or without the unearned increment without an intermediary, to the benefit of each country and island in the world. It is readily seen that the terms of barter would so hamper interchanges as to well-nigh throw civilization back into barbarism. An intermediary with its two results, a price and a rate of exchange, is a necessity. With one intermediary only for the whole world, with tokens of it and promises to pay it, interchanges would be carried out on the terms of barter. The world's experience since 1873 has demonstrated this, and it may be truly said that the key to the derangement of prices and the threatened destruction of industries in some countries possessing the gold standard is found in the use of four intermediaries instead of one only for the world." There are leading Continental economists and writers of tracts published by the "Gold Standard Defence Association," who either deny or ignore that the fall of prices in the British Isles since 1873 is in any way connected with the precious metals. It is certain that, holding this view, they are in flat

contradiction to the experience of experts in the foreign and colonial exchanges of intermediaries, international and inter-colonial traders and financiers. No one can deny that as the silver price of gold has risen, the sale-price of silver securities in gold standard countries has declined in proportion to the fall in the gold price of silver, simply because the same weight of silver commands a less weight of gold. And this law operates on wheat and every other thing which may be exchanged between a country with an effective silver currency and a country with an effective gold currency. Unless prices of the things in the silver standard country rose in proportion to the rise in the silver price of gold, competition between sellers of the things in a gold standard country necessitates a fall of prices equivalent, or nearly so, to the rise in the silver price of gold, or in the other aspect to the fall in the gold price of silver. The world at the present time has seven monetary and currency intermediaries, the workings of which are fully explained in this book. Five of them are of a vastly diverse nature, and entail very heavy percentage fluctuations, reaching sometimes to 400 per cent. Whereas, if the whole world had only one scientific automatic measure of value, the fluctuation of the intermediary would be confined within about 1 per cent. between the most distant ports of the world. The writer's "Guide to the Exchanges of Gold and Silver Coins for the use of Sailors, &c.," brought out in 1894 and added to 1896, is in substance in this edition, and contains the mode of working the world's exchanges of intermediaries advocated by the writer. This system is such as exists between countries using the same weight of pure metal as their chief money of account; as between the British Isles and Australasia, and between France and Belgium. A box containing cardboard facsimiles of the current coins of the British Isles, made in Bavaria, is a toy used in the kindergarten system of instruction of children. This system is capable of valuable extension through the higher standards of education in all schools, and should be the means not only of instructing children to think and work out problems in prices and the exchanges

of intermediaries, but also to interest them in the functions and power of money as they may be able to receive it. This study and practice would add vastly to the interest of geography. Miss E. C. Sharland, in her valuable work, "Coin of the Realm, what is it?" which originally appeared in the children's column of the *Co-operative News* in 1888, imparted instruction commencing with the mint-issue weight of pure metal in the world's chief gold and silver standard monies of account. She concentrated the attention of children upon British prices, threw off monetary signs, and enabled them to present their shopping expenses in troy grains of pure gold. She led them through the barter of Indian wheat for Manchester piece goods; through the exchange of the same goods by means of the intermediaries, the British Indian rupee and the British sovereign. She asked thirteen questions of children and young people ranging from nine to twenty years of age, and received answers from eight; the three prize-winners being of the ages of 12, 12¾, and 13½ years, two of whom were girls. The answers given by these children surprised the keeper of the British standards, who recognized the success in Miss Sharland's able chapters upon money, and added, "In these chapters the actual relation between the standard of monetary measure in different countries is based on the simple unit, a grain of standard substance; and so all the technical overloading always met with in the literature of this subject is quite swept away. The child has only a simple factor before him, and by successive gentle steps he has been taught to apply that factor to unravelling so many knotty problems in exchange and value." Specimen lessons to carry children from the point attained in the kindergarten system to Miss Sharland's instruction and beyond appear requisite, and when these are provided there is every reason why the subject should be mastered, as it surely can be, by every one before leaving school. A most instructive and interesting lecture could be made of "Money, its Place and Functions in the World, and how to use it." The chief coins and figures on the subject could be impressed on the spectator

by lime-light illustrations, and the mode of getting it from the earth and the use of it in mints, banks, &c., would present beautiful pictures, which could not fail to interest and instruct all classes, from the youngest to the oldest.

The following extracts from writers, the first of whom died in 1641 and the second wrote in 1753, are commended to each reader for thought and practice. In Thomas Mun's "England's Treasure by Foreign Trade" there is the following advice to his son. III. He ought to know the measures, weights, and monies of all foreign countries, especially where we have trade, and the monies not only by their several denominations, but also *by their intrinsique values in weight and fineness compared with the standard of the kingdome, without which he cannot well direct his affairs.*

V. He ought to understand and be a diligent observer of the rates of Exchanges by Bills, from one State to another, whereby he may the better direct his affairs, and remit over and receive home his monies to the most advantage possible. This sage merchant's advice to his son is contained under twelve clauses, and he sums up: "Thus have I briefly shewed thee a pattern for thy diligence; the merchant in his qualities; which in truth are such and so many that I find no other profession that leadeth into more worldly knowledge."

William Horsley's introduction to the "Universal Merchant 1753" contains the following:—"The acquaintance with the exchanges, however it may seem to some the business of merchants only in commercial free states, falls properly under the cognizance of gentlemen, particularly those who have or intend having any share in the Legislature, and still more materially such who are in the immediate direction of public affairs, as without a *masterly skill in bullion and coin*, it is impossible to understand exchanges, whence singular inconveniences may happen in delicate emergencies. There is not any article of trade in which the gentleman should not be a tolerable theorist; but in *bullion and coins*, whereby other articles are usually adjusted, he should be practically skilful."

Under the conviction that the mechanism of the inter-

changes of things between man and man and community and community is a vastly important branch of sociology, and hearing that our great synthetic philosopher had treated of the evolution of commerce, the writer obtained a copy of Herbert Spencer's third volume of "Principles of Sociology." It is with intense interest and pleasure that the last 215 pages has been perused. The chapters on Acquisition and Production, Auxiliary Exchange, Free Labour and Contract are marvellous instances of the display of knowledge and deductions therefrom. Here are two quotations, page 395, "Among examples of evolution which societies furnish, perhaps none is more striking than this gradual advance from the giving and receiving of presents by savages to the daily balancing of a nation's myriads of business transactions by a few clerks in Lombard Street"; and on page 501, "Only in modern times have trustworthy currencies given precision to contracts; and even still in various places depreciated paper currencies interfere with this precision." Our philosopher could go no further than our economists have led him. The following statement has been hazarded to a good many different intelligent persons recently:—"Assuming that the population of the earth is 1,500,000,000 people, it may be seriously doubted whether one in a million understands the mechanism of the interchanges of things between individuals and communities." The statement has been acquiesced in, and not one has attempted to show the mechanism. One object of this work is to endeavour to throw more light upon the subject than the author has met with in any work on economics he has read. The late Dr. A. Soelbeer looked forward with the author to the time when, for all statistical purposes, prices would be stated in weights of pure metal, and he suggested the milligram. This appears to the writer too small. He thinks the decigram, which is equivalent to a little more 1½ troy grains, more suitable, and has therefore given in this weight all the chief moneys of account of the world, all his tables being worked upon this weight. The author does not despair of one or two perhaps of the following being accomplished in his day. The possession of a well-

formulated science of money such as the world will be compelled to accept and teach as truth; a book similar to that of the painstaking German author Noback, 1879, with regard to weight and fineness of coins in current use, combined with facsimiles in print of the world's current coins; a constant display in London consisting of the current coins of the world in duplicate; the nature and functions of money practically taught, terminating with the science of it in the schools of the world with, or as a branch of, geography. He attaches his own ideas about money.

THE SCIENCE OF MONEY.

I.—MONEY, WHAT IT IS. ITS CONDITIONS AND LAWS.
II.—MONEY, WHAT IT IS NOT.
III.—A SIMPLE AID TO THE ACQUIREMENT OF "A MASTERLY SKILL IN BULLION AND COIN."

I.—MONEY, WHAT IT IS. ITS CONDITIONS AND LAWS.

Article I.—It of necessity possesses two functions. First, and that which is vastly the most important, it is a measure of value; and, secondly, it is a means of payment.

Article II.—It is a commodity used as a measure of value of all services, other commodities and properties within a country and between countries possessing the same commodity as a measure of value. It is also a means of payment for the purpose of facilitating the interchanges of services, commodities, and properties between man and man and between community and community.

Article III.—It is a measure of value by means of the value-giving factors it contains. These value-giving factors are expressed in the term *cost of production*, the main ingredients in which are past and present labour.

Article IV.—As a measure of value, it must possess value. It is intended that it should do its work by its value. That the value-giving factors in the chosen intermediary

commodity should exchange with services, other commodities and properties in proportion to the value-giving factors contained in each.

Article V.—If these conditions are sound, it necessarily follows that the true and sole definition of money is the intermediary commodity or standard substance appropriated to currency purposes for facilitating interchanges of services, commodities and properties.

Article VI.—The intermediary commodities used as money or measures of value and means of payment by the civilized and semi-civilized peoples of the world are gold and silver, in the shape of bullion and coins, at the present time.

Article VII.—A scientific automatic monetary standard of value and means of payment is a conditional thing. The conditions are: (*a*) The substance forming the standard must be received by the State, which accepts it as a standard in unlimited quantities from any place or person in payment to the State, and at Mints should the State possess any. (*b*) The substance must be fitted for monetary purposes by the State or other constituted authority. (*c*) The substance must be made unlimited legal tender. (*d*) There should not be any charge for coinage or for adding alloy to the pure metal forming the standard coins, so that the value of the pure metal in the standard currency shall be the same as an equal weight of bullion. (*e*) Standard coins should be kept up to Mint issue weight at the cost of the whole community.

Article VIII.—Any laws beyond those necessary to secure the conditions mentioned under (*a*), (*b*), (*c*), (*d*), and (*e*) of Article VII., and to protect against fraud, should have for their object to preserve the standard substance against favour or fetter by the operation of monopolies, rings, and corners.

Article IX.—A scientific monetary standard cannot possibly be made out of two commodities, because an attempt at it must embrace a fixed ratio between the two substances. It is unthinkable that any fixed ratio would conform to the comparative average cost of the production of the two commodities. If one should be favoured the other would be fettered; if one should be fettered the other would be favoured.

And thereby monopoly prices would be secured for one class of producers, and a direct incentive would be given to the formation of rings and corners under the deliberate action of the State.

Article X.—There are other instruments to be used as intermediaries, such as metal tokens of, and paper promises to pay the standard substance, which may be safely, if prudently issued, used as substitutes for the standard substance in a country possessing an effective automatic metal monetary system. But the moment that the standard substance cannot be obtained of the weight indicated by the monetary sign upon the State notes payable on demand at the desire of the holder of the note, the system of currency ceases to be a monetary system, and has degenerated to a currency system of inconvertible paper.

Article XI.—Since experience shows that international interchanges of things accommodate themselves to any system of monetary or currency intermediary, a country's primary object should be to possess a metal measure of value, and means of payment of such a quality as is practicable, which shall present over lengthened periods the most stable measure of value for the sale of the internal interchanges of the country and the deferred obligations of the inhabitants. The secondary object is to possess the best substance with which to conduct their international interchanges. That substance which would meet the two objects of course is preferable.

Article XII.—The condition of interchanges between the people inhabiting the continents and islands of the world should be carried out upon the terms of barter. The terms of barter are, value-giving factors in this thing with or without the unearned increment for value-giving factors in that thing, with or without the unearned increment, to the benefit of each country and island in the world. It is readily seen that the terms of barter would so hamper the interchanges of things as to well nigh throw civilization back into barbarism. An intermediary with its two results, *price* and a *rate of exchange*, is a necessity. With one intermediary only for the whole world

the interchanges of things would be carried out upon the terms of barter. With more than one intermediary and a fluctuating ratio between them interchanges of things for things cannot be carried out on the terms of barter. The world's experience since 1873 has demonstrated this, and it may be truly said that the key to the derangement of prices and the threatened destruction of industries in some countries possessing the gold standard is found in the use of five vastly diverse intermediaries instead of one for the whole world.

II. MONEY, WHAT IT IS NOT.

Article XIII.—It is not a printed, written, or verbal promise or order to pay a given weight of the intermediary commodity. For such promises or orders do not possess the value-giving factors equivalent to the value-giving factors contained in the weight of metal, indicated upon the face of the promise or order to pay the commodity. The value-giving factors in a printed promise to pay £1000 may be ·058,855 of 1 troy grain of pure gold, or one-eighth of a penny, whereas the weight of gold promised is 113,001·605 troy grains of pure gold.

Article XIV.—It is not any description of token, such as silver or bronze coins in countries possessing a gold standard, or gold or bronze coins used in countries possessing a silver standard. For these coins are not intended to possess the value-giving factors equivalent to the value-giving factors which are in the standard substance for which they pass as tokens.

Article XV.—It is not a counter. For the same reason that a counter need not possess value-giving factors in near relation to the value-giving factors in the services, commodities, and properties for which it is exchanged.

Article XVI.—"It is not something which is more or less than a commodity." Neither "is it anything which is paid by anyone," as the German word geld at the beginning of the fourteenth century A.D. is said to have meant.

"Many who think only superficially upon the subject of money doubt that it is intended that it should do its work by

its value, and that it ordinarily thus accomplishes its work. The doubter who, perhaps, affirms that in his opinion money is only a token might be asked: A token of what? If, with Anacharsis, he compares money to a counter, or, with Bishop Berkeley, defines money to be a counter, he might be told that neither tokens nor counters can do the work of money. For neither is a token for money nor a counter of the nature of money. If the cheapest counter imaginable (a piece of paper) can do the work of money, then abolish all mints and the necessary machinery, and effect interchanges by that instrumentality. Thereby this country would retain its value-giving factors, which it now parts with for gold and silver requisite for its currency purposes. But as things are, and apparently need to be, let us reflect that the £300,000,000 of gold and silver imported and exported between the countries of the world in one year necessitate the payment or receipt by each country of value-giving factors in some other things for the gold and silver imported and exported by each country."

"The writer would invite the bimetallists to produce a science of money under the terms and conditions which they may consider science demands. Perhaps in the course of time, when more light has to some extent overcome the gross darkness upon the subject, and should agitation for bimetallism continue, the best step which can next be taken would be to convene a meeting of representatives of all States throughout the world upon the subject of money. These representatives should be scientific, disinterested men, who are removed from the cares and snares of business, and whose aim should be to approach the subject upon scientific, rational, and common-sense principles, and not from the side of suggested expediency."

Two thousand copies of this tract were sent to rulers, statesmen, legislators, finance ministers, professional economists, &c. No adverse criticism upon it has reached the writer since its production in 1894.

Professor Goldwin Smith's words, which are quoted at the commencement of this preface, taken in connection with

others from the lips of Professor I. K. Ingram, indicate dissatisfaction with the present state of economics:—"I. That the study of the economic phenomena of society ought to be systematically combined with that of the other aspects of social existence. II. That the excessive tendency to abstraction and to unreal simplifications should be checked. III. That the prior deductive method should be changed for the historical. IV. That economic laws and the practical prescriptions founded on them should be conceived and expressed in a less absolute form. These are in my opinion the great reforms which are required, both in the conduct of economic research and the expositions of its conclusions. I am far from condemning the effort after accuracy of language and well-defined terms, but the endless fluctuations of economists in the use of words certainly indicate a very general failure to apprehend and keep steadily in view the corresponding realities. . . . The method of the new school is realistic and historical. It sets out, says Held, from observed facts and not definitions, which often serve to mark only foregone conclusions." An address to the British Association on Economics and Statistics, 1878.

1897.

PREFACE TO THE FIRST EDITION.

PERHAPS it may be considered that among four or five vastly important questions which might be asked respecting the condition of any community, the following concerning currency are not the least important.

How does it effect its interchanges of commodities, services, and properties between its members, and as a community with other communities of the earth? Does it cut notches in a stick as a record of something of value in kind parted with or received, to be returned in the same or some other kind of equivalent value? Does it possess a measure of value? Are its proclivities and practice in favour of the use of paper instead of the weight of metal indicated by the paper? Are the weight and quality of the substance used of primary importance to it? Does it possess a scientific, automatic, metal monetary system? Has it an effective metal monetary *cum* coinage charge system? Does its system consist of inconvertible paper? The perplexities and difficulties and the diverse views which have been so prominent during the last twenty years in connection with the world's two great measures of value and means of payment, gold and silver, have arisen from the darkness as to their mode of action which enshrouds the employment of these instruments for facilitating interchanges between man and man, and community and community. It would seem that until a science primer upon money which will satisfy the world is produced, the present state of ignorance and uncertainty must continue.

The writer has long held, and still holds, the opinion that the thorough comprehension springing from the practice of the foreign and colonial exchanges presents the soundest

foundation for the construction of this science. He therefore thinks it due to the students of the subject that he should immediately present to the world a development in working the exchanges which admits of the abolition of all tables of exchanges, and which also wonderfully simplifies the necessary instruction upon the exchanges.

There are many ways of working the foreign and colonial exchanges. Financiers, bankers, bullion coin and exchange dealers, merchants, traders, and dealers mostly arrive at results by the use of exchange tables. This is working by signs in a rule-of-thumb manner, with the almost certain result of losing sight altogether of the thing signified, which is always between countries possessing effective monetary systems, either a weight of pure gold for a weight of pure gold or pure silver; or a weight of pure silver for a weight of pure silver, or for a weight of pure gold.

The further development which it is attempted to exhaustively set out in this book consists of converting the monetary sign for a weight of gold in one country into the monetary sign for the same weight of gold in another country, and the same with silver; and the monetary sign for a weight of gold in one country into the monetary sign for a weight of silver of equivalent value to the weight of gold in another country, at the ratio of the day between the two metals, and *vice versâ;* by means of the mint-issue weight of pure metal in each chief money of account of the world.

This manner of working the exchanges and adding to or deducting from the sum exchanged the deviation from the fixed and absolute pars of exchange in the shape of premium or discount, keeps the important matter of weight of gold and silver prominently before the mind, and should greatly aid in preparing it to receive the science of money as soon as it may be promulgated.

It will be seen that there are other and shorter modes of reaching fixed pars of exchange of large or small sums of money, but the working would be effected by the use of signs for weights, and not by the weights of pure metal.

The monetary systems of 161 countries are shown. The

274 fixed gold and 156 fixed silver pars of exchange are given. A constant is given under each head of thirty monetary systems, embracing the proposed new Austria-Hungarian and the possible Russian gold systems, by which the ratio of the day between the metals can be easily determined. With the ratio and the mint issue weights of the world's chief moneys of account, 870 different exchanges of gold for gold or for silver; silver for silver or for gold, forming any sum, can be easily and correctly reached.

Gold and silver constants are given, which, if they are divided by the price of silver of the day in gold monetary systems, and the price of gold of the day in silver monetary systems, being divided by the constant, give the absolute par with each chief money of account in all places.

Lengthened interest in the welfare of seamen has added a keen incentive to the production of this simple ready reckoner. These men and soldiers, besides travellers throughout the world, will find the book a guide to the closely approximate exchange value of current gold and silver standard coins, tokens, and printed or written promises to pay money of all systems everywhere.

Should this book prove a stepping-stone to the science of money, it would attain the highest distinction the writer could desire for it, and would be an ample reward for the labours of the author in the vastly important but, as yet, very inadequately explored field of money.

1893.

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NORMAN'S

UNIVERSAL CAMBIST.

Part I.

CHAPTER I.

The book—The object of the book—Its construction—Definitions and examples—Money—Monetary Systems—Currency—Money tokens—Credit Instruments—Standard (*a*)—Standard (*b*)—Conditions: I. Of a scientific, automatic, metal monetary system; II. Of an effective automatic metal-*cum*-coinage charge monetary system; III. Of a currency system—Monopoly coins—Bimetallism, or local dual standards—Monometallism—Money weights—Weights by which gold and silver are sold—Money tables—The ratio between silver and gold—Premium and discount upon fixed and absolute pars of exchange.

The Book.—This book is issued with the hope and expectation that it may be of great use in removing the present ignorance upon the subject of money.

Instruction as to what money is and how it does its work, and what tokens of money and written or printed promises to pay money are, and how they do their work, should form a very important part in every system of education, and especially such systems as are under the direction or control of governments.

It has been demonstrated that boys and girls ranging in ages from twelve to eighteen years can, when properly taught, thoroughly understand and work the foreign and colonial exchanges of gold, silver, and inconvertible paper.

The writer is confident, from his own experience, that any one with the least aptitude for figures, who can work decimal

multiplication and division, can master the foreign and colonial exchanges. "A masterly skill in bullion and coin," the writer believes to be the essential stepping-stone to the science of money; the foreign and colonial metallic exchanges present the best field for the acquirement of this skill.

Its Object.—The main object of this book is to set forth in the plainest manner possible, with examples—(1) the most simple and direct modes of arriving at the world's fixed and absolute pars of exchange; (2) the mode of determining the equivalent commercial exchanges limited by the cost of the transmission of metal; (3) coinage charges; and (4) interest for the use of money, when such a charge is included in the rate of exchange. Its further object is to furnish instruction upon the use of seven intermediaries constituting prices and the foreign and colonial exchanges among the trading communities of the world.

It is also to instruct all young people, both boys and girls, so that they may be able to work the world's foreign and colonial exchange with ease and accuracy. The book will prove a valuable guide to sailors, soldiers, and travellers, besides forming the constant desk companion of every financier, banker, international and intercolonial trader in the world.

Its Construction.—The method of the compilation of the book is to give—(1) definitions and examples; (2) to set forth exhaustively the fixed and absolute pars of exchange of the world's metal monetary systems under the name of the chief country possessing the system; (3) to present a dissertation in support of the contention that the world's gold and silver exchanges should be quoted and worked by premium and discount on one factor only, in the manner of working the exchanges between the British Isles and Australasia, France, and the countries of the Latin Union, India and Ceylon, the U.S.A., and Liberia.

The writer desires to avoid all controverted subjects in this book, his primary intention being to make it of use to practical people. A science primer of money is the crying want of the world. His idea of what this should be he has

set forth in the preface. But he presumes, for the purposes of this work, and to keep weights of pure gold and pure silver constantly before the minds of the readers, to insist upon the following—

DEFINITIONS AND EXAMPLES.

Money.—The term "money," for the purposes of this book, is limited to the standard substance appropriated to currency purposes. Money therefore means, in a gold-standard country, the pure gold in the standard gold coins and the pure gold in the shape of bullion reserves for currency purposes, and in like manner for silver in a silver standard country.

Monetary System.—The term "monetary system" is limited to that system which consists of the possession of one or other of the standard substances, gold and silver, in each country in sufficient quantities for the conduct of international interchanges of all properties imported and exported, so that the tokens for money and credit instruments which are promises to pay money, do the work at an equivalent exchange value with the standard substance, and as though the whole currency consists of the standard substance only.

Currency.—The term "currency" includes money and all intermediaries which, under given conditions, do the work of money.

(*a*) **Money Tokens.**—These intermediaries, which do not come under the writer's definition of money, are metal tokens for money, and all credit instruments which are either promises or orders to pay money. The conditions under which the tokens for money and promises and orders to pay money do their work are, that metal tokens for money are not unlimited legal tender; as in the British Isles, where no more than forty shillings in one payment nor twelve pence in one payment are legal tender, but where, at the same time, gold is legal tender to an unlimited extent.

(*b*) **Credit Instruments.**—The condition upon which credit instruments do their work on an equality with the standard

substance or money is, that the money promised can be obtained without question, delay, or expense at the will of the holder of the promise or order to pay the money, when the promise of money, or the order to pay money, becomes due.

A country possessing a currency system only might find it impossible to obtain the standard substance for any quantity of promises to pay it. Or it might be able to purchase the standard substance for a small or heavy premium expressed in these promises.

Standard (*a*).—The term "standard" is used in two senses in connection with money. In the first and most important sense, it is the substance appointed in a country as both a measure of value and a means of payment, such as gold in the British Isles and silver in India.

Standard (*b*).—In the second sense, it is applied to the composition of the standard metal. Pure gold and pure silver are not hard enough to stand the wear and tear of circulation, and are therefore mixed with baser metal to supply this deficiency. The quantity of alloy varies in the construction of standard metal for coins of gold and silver. It consists of a certain proportion of weight in 1000, as in British standard gold, 83·333 parts alloy in 1000 parts of standard gold.

I. **Of a Scientific Automatic Metal Monetary System.**—It must consist of one substance in each country. The substance must be received in unlimited quantities by the state, be fitted by the state for currency purposes, and be appointed unlimited legal tender. There should not be any coinage charge for manufacturing the standard coin, so that the exchange value of the coin and bullion should be equal. That for all promises to pay money, the standard substance of the weight indicated by the promise should be obtainable in exchange for the promise at the option of the payee, without question, delay, or expense.

II. **Of an Effective Automatic Metal-cum-Coinage Charge Currency System.**—To the extent of the coinage charge, there

is a departure from the conditions of a scientific metal monetary system. A coinage charge does not add to the international value of the metal forming the coin. It widens the margin of exchange to the detriment of the country doing business with the country wherein the charge is imposed. The charge acts unfairly on the people of the country imposing it. In India, where the poor either hoard silver or make it into bangles, the coinage charge falls as a tax upon them. And this charge is doubled should it be necessary to reconvert their bangles, &c., into rupees. Among the Western powers of the world, the approved principle is not to levy any coinage charge upon standard metal which is converted into coins. Under this system the standard coin is obtainable at the option of the holder of a promise to pay the standard substance at the due date, without question, delay, or expense.

III. **Of a Currency System.**—A country which cannot pay for its imports with the standard substance, and whose standard metal is at a premium in paper promises to pay money for any purpose, does not possess a monetary system. It has sunk to a currency system.

Monopoly Coins.—Monopoly coins, such as the Dutch $2\frac{1}{2}$ guilder for $28\frac{1}{2}$ millions of people in Java and other Dutch possessions forming a system of currency, cannot be compared with a scientific automatic metal monetary system at work in a country possessing its own mints. In the first-named the object is to have a counter as an intermediary in effecting exchanges which to a great extent partakes of the nature of inconvertible paper in the world at large. In the second, the object is that the substance shall do its work by the value-giving factors it contains, not only in the country itself, but in the whole world on equal terms.

Before giving a definition of the foreign and colonial exchanges, it is necessary to state what bimetallism is.

Bimetallism, or Local Dual Standards.—This is a theory and attempted practice to make one efficient, permanent, scientific, automatic monetary standard by the union of two metals,

gold and silver, at a ratio of weight to be fixed by government authority. Say the ratio is $15\frac{1}{2}$ to 1; that is, $15\frac{1}{2}$ parts of silver to 1 part of gold. Then the mint or mints of one country or many countries are to be open to the unlimited reception of gold and silver from any place or person, to be fitted for monetary purposes by the state, and to be made unlimited legal tender under state enactment in the final settlement of all monetary obligations; the payer to have the option of making payment in whichever metal he pleases. Monometallism is the treatment of one metal only for one country in the manner in which the advocates of bimetallism desire that two metals should be treated for one country.

There are two sides to bimetallism, a state or mint receptive side, and the distributive side. The closure of the mints of the Latin Union of France, Italy, Belgium, and Switzerland in 1873 against the unlimited reception of silver, in which the United States of North America joined, destroyed bimetallism on its receptive side. The distributive side of bimetallism still exists in the Latin Union and the United States of North America, though in the latter country the present law does not provide this; but the international trade of such of these countries as still possess effective monetary systems is conducted upon, and settled by gold. With the hope of benefiting others the writer would state that his mind found complete repose upon this vexed question when it had threshed out this dictum, "No two different substances can be exchanged *for any length of time* upon parallel lines of quantities or values, neither can they be produced for any length of time on parallel lines of cost." Since the function of money is a measure of value, it must contain value of an unfettered and unfavoured character, without which it would appear impossible to possess the object desired. Hence the introduction of a legislative fixture of ratio between two substances is destructive of the chief function of money.

Mint issue Weight of pure Gold and Silver in the World's twenty-six chief Moneys of Account.

In decigrams.

GOLD.

I.	Egypt pound	74·375
II.	British Isles pound	73·2238177254
III.	Turkey pound	66·14666667
IV.	Portugal milreis *	16·2570834
V.	Uruguay peso	15·56149
VI.	U.S.A. dollar	15·0463088154
VII.	Argentina peso *	14·516129032
VIII.	Brazil milreis *	8·21779167
IX.	Russia rouble, new *	7·741206
X.	Japan yen, new	7·5
XI.	Holland guilder	6·048
XII.	Chili, new *	5·4917820835
XIII.	British India rupee, new *	4·88158784 83
XIV.	Scandinavia crown	4·0322580645
XV.	Germany mark	3·58422390 68
XVI.	Austria-Hungary crown, new *	3·0487804878
XVII.	France franc	2·9032258064

SILVER.

I.	Shanghae	334·6254
II.	Mexico	244·4091849
III.	Japan	242·60714989
IV.	Java	236·25
V.	Philippines	233·64
VI.	Columbia *	225
VII.	Bolivia	202·5
VIII.	Russia	179·960937
IX.	Siam	146·645531
X.	Austria	111·111111
XI.	British India	106·91821 5096
XII.	Persia	41·429836302

Countries marked * do not at present possess effective monetary systems.

Countries which cannot exchange for its notes the weight of metal indicated upon the notes without question, delay, or expense, do not possess effective metal standards. Neither does a country possess an effective monetary system wherein the standard substance for customs—payment of duties—is at a premium.

The world to-day possesses, or professes the desire to possess, seventeen or more effective gold monetary systems, the bases of the same being a fixed weight of pure gold in

each chief money of account on issue from the mints. It has nine silver monetary systems in operation, by which is meant that silver is the professed standard. The gold systems possessed or aimed at are—I. Egyptian pound; II. British pound; III. Turkish pound; IV. Portuguese milreis; V. Uruguay peso; VI. United States N.A. dollar; VII. Argentine peso; VIII. Brazilian milreis; IX. Russian rouble; X. Japanese yen; XI. Dutch guilder; XII. Chilian condor; XIII. British Indian rupee; XIV. Scandinavian crown; XV. German mark; XVI. Austria-Hungarian mark; XVII. French franc.

The silver systems possessed or aimed at are—I. China tael; II. Mexican peso; III. British dollar: IV. Java rix-dollar; V. Philippine dollar; VI. Bolivian boliviano; VII. Siamese tical; VIII. Persian kran; IX. Columbian dollar, among 18,034,000 people in Central and South America. Assuming that there are 1,300,000,000 people engaged in and affected by inter-colonial and international prices of things through the seven diverse intermediaries, it is of some interest and of great importance to know the numbers of people using each class of intermediary. The following approximate numbers may be ventured:—I. Automatic gold with gold-cum-coinage charge, 268,667,000; II. automatic silver; also silver-cum-coinage charge, 443,470,000; III. silver-cum-counter charge, 266,000,000; IV. inconvertible paper, based either upon gold or upon silver, chiefly the former, 268,667,000. Japan and Peru have just closed their mints against the reception of silver from the public.

Gold.—It will be noticed that there are three pounds possessed by Egypt, the British Isles and Australasia, and Turkey. The heaviest is 12·69 grains of pure gold more than the lightest. The Brazilian milreis is little more than one-half the weight of the Portuguese milreis. There are six pesos and dollars, the heaviest being 2·83 grains of pure gold more than the lightest. The Argentine peso is five times the weight of a franc. The study of the 967 equivalents presented in the following tables affords matter for interesting reflection. Such questions as the following

might be asked:—Why such a trifling difference between the British and the Egyptian pound as 1·77 grains on a weight of 113·0016? Why such trifling differences between the weights of pure gold in the dollar family? The Newfoundland dollar and the British pound have a common basis. The weight of gold represented by one halfpenny is the same as that represented by the Newfoundland cent, so that 4*s.* 2*d.* in the British monetary system and a dollar in the former Newfoundland monetary system indicate the same weight of pure gold, namely, 23·542008 troy grains. One is tempted to imagine that the motive for these minute differences might have been the determination that these measures of value ought not to be the same weights, or the mistaken idea that if not the same the lesser could do the work of the greater.

Silver.—The difference between the lightest and the heaviest of the five silver dollars is only 17·4360 grains, or 4·7 per cent. upon the lightest weight equal in value at 38*d.* per ounce to 1½*d.* The trade dollar is no longer coined. Taking the twenty-eight metal measures of value, it will be noticed that there is only one which has a round number of grains, namely, the rupee, with 165 grains of pure silver; all the rest run into decimals of a grain.

At the present time the British Isles, Australasia, Canada, etc., the United States of North America, etc., Germany, France, Belgium, Switzerland, Scandinavia, Holland, and Egypt may be said to possess effective gold monetary systems for the conduct of international trade.

At the present time China, Corea, the Straits, the Philippine Isles, Siam, a Republic or so in America, the isles of the Pacific, Persia, and Mexico, may be said to possess effective silver monetary systems for the conduct of international and their internal trade to the extent that the silver currency has permeated their territories.

Money Weights.—The table of weights by which money is weighed in each country. The French system of weights is used in ten out of the fifteen gold monetary systems, and in three out of the twelve silver monetary systems (the trade

dollar is no part of a special monetary system); troy weight is used in three of the gold monetary systems.

Weights by which Gold and Silver are Sold.—The kilogram or half kilogram of pure metal is used in ten gold and in three silver monetary systems. In the United States of North America, both gold and silver are sold by the ounce, or 480 grains of pure metal. In the British Isles they are sold by the standard ounce, or 440 troy grains of pure gold and 444 troy grains of pure silver.

The Ratio of Silver to Gold.—This ratio is established by the variable gold price of silver in gold-standard countries, and the variable silver price of gold in silver-standard countries. This factor furnishes a very valuable means for quickly and accurately determining upon the weights of gold and silver the absolute par value between the gold and silver in different monetary systems.

Gold for Silver.—To find the ratio of gold to silver in a gold-standard country.

This ratio is found by dividing the gold sign for any weight of gold by the gold sign for an equal weight of silver. It does not matter in the least what the weight is. We will take a grain.

To find the ratio in a gold-standard country.

The gold sign for an ounce of gold (440 grains pure gold) in such a gold-standard country as Great Britain is £3 17*s*. 10½*d*., or 934·5*d*.

$$\text{Hence the gold sign for one grain is } \frac{934{\cdot}5}{440}\,d.$$

Again, the gold sign for an ounce of silver (444 grains) is $38\frac{3}{16}d.$, as quoted in the daily papers of to-day, say.
Hence the gold sign for one grain of silver is—

$$\frac{38\frac{3}{16}}{444}, \text{ or } \frac{611}{16 \times 444}.$$

The ratio we require is then—

$$\frac{934{\cdot}5}{440} \div \frac{611}{16 \times 444}, \text{ or } \frac{934{\cdot}5 \times 444}{440} \div \frac{611}{16},$$

and we have expressed it in this shape, because it is plain

that in a gold standard country it is only the gold sign for silver which changes, and so the fraction $\frac{934{\cdot}5 \times 444}{440}$ is a constant which, on reduction, we find to be 942·995...*d.*

The ratio of gold to silver is, then, at once obtained by dividing 942·995...*d.* by the pence quoted at any time, as the gold sign for an ounce of silver. In this instance the ratio is 24·694 to 1.

Otherwise.—In the British Isles it is desired to know the ratio of silver to gold by a price of 38¼*d.* per ounce, or 444 troy grains of pure silver. Then divide 38·25 by 2·123863*d.*, the sign for one grain of gold, and the result is 18·1273 grains of gold: 444 grains of silver divided by 18·1273 grains of gold gives the ratio between gold and silver at 24·492; this is 24·492 parts of silver to 1 part of gold. A shorter method for reaching the same result is by the use of a constant. Under the British monetary system this constant is 942·995. This figure is reached by answering the question, If 240*d.* is the British monetary sign for 113·001605 troy grains of pure gold, what will the sign of 444 troy grains of gold be? The answer is 942·995. This constant, being divided by the British gold price of silver of the day, gives the ratio indicated by the price.

Silver for Gold.—To find the ratio of silver to gold in a silver-standard country.

This ratio is found by dividing the silver sign for any weight of silver by the silver sign for an equal weight of gold. It does not matter in the least what the weight is. We will take a grain.

The silver sign for one tola (180 grains) of gold in India is quoted as R21 8a. 1p. in the Indian daily paper of to-day, say, or R21·505208$\frac{3}{3}$.

Hence the silver sign for one grain of gold is R$\frac{21{\cdot}505208\frac{3}{3}}{180}$

Again, the silver sign for 165 grains of pure silver is one rupee, for the rupee contains 165 grains of pure silver when issued from the mint.

Hence the silver sign for one grain of silver is R $\frac{1}{165}$

The ratio we require is then $\frac{21{\cdot}5052083}{180} \div \frac{1}{165}$

Thus—

(i.) This ratio $= 21{\cdot}5052083 \times \frac{165}{180} = 21{\cdot}5052083 \times \frac{11}{12}$,

(ii.) This ratio $= 21{\cdot}5052083 \div \frac{180}{165}$

$= 21{\cdot}5052083 \div 1{\cdot}090909$

In either way we have first to express the silver sign for a tola of gold in rupees and decimals of a rupee.

(i.) If we multiply this by 11 and divide by 12; or, what is the same thing, subtract from it $\frac{1}{12}$ part, we get the ratio.

Or (ii.) If we divide this by 1·090909, we get the ratio, and this is 1 to 24·492.

Otherwise.—In India it is desired to know the ratio between silver and gold established by a price of R26 11a. 5p. for one tola or 180 troy grains of pure gold. Then divide 5129·8p. by 1·1636p., the sign for one grain of silver, and the result is 4408·56 grains of silver; 4408·56 grains of silver, being divided by 180 grains of gold, gives the ratio between the two metals at 24·492; this is 24·492 parts of silver to one part of gold. A shorter method for reaching the same result is by the use of a constant. Under the Indian monetary system this constant is 1·0909. This figure is reached by answering the question, If one rupee is the Indian monetary sign for 165 troy grains of pure silver, what will be the sign for 180 troy grains of silver? The answer is R1·0909. The price of a tola or 180 grains of pure gold, being divided by this constant, gives the ratio of silver to gold indicated by the price.

Premium or Discount on Fixed and Absolute Pars.—Deviations from par due to transmission and coinage charges upon the standard metal; interest for the use of money; profits to dealers in exchange; the different degrees of credit enjoyed by parties to a bill of exchange;—all these considerations affecting the rate of exchange, and adding to or diminishing from the weights of standard metal, are dealt with by premium and discount upon fixed and absolute pars of exchange.

CHAPTER II.

The mechanism of the interchanges of things—Most important knowledge possessed by the experts in the foreign and colonial exchanges—International traders and financiers—Automatic pure gold monetary system, Great Britain—Automatic pure silver monetary system, China—British India silver-cum-countercharge currency system—Argentina inconvertible paper based on gold currency system—Peruvian inconvertible paper based on silver currency system—Gold-cum-coinage charge and silver-cum-coinage charge currency systems—The foreign and colonial exchanges of intermediaries—Eight descriptions of currency—Exchangeable things—Table I.

The mechanism of the interchanges of things between man and man and between community and community is a very important branch of sociology, which it becomes every educated person to understand. In the exchange of one thing for another thing the conditions of barter should be preserved. Perhaps it may be accepted that economists admit that the terms and conditions of barter are: value-giving factors in this thing with or without an unearned increment, in exchange for value-giving factors in another thing with or without the unearned increment; and without the use of an intermediary. Nearly the whole ingredients in value are, past and present labour of the minds and limbs of mankind, assisted by tools, machinery, and beasts of burden. A dogma of J. S. Mill's, "That the substitution of money for barter makes no difference in exports or imports, nor in the law of international values," Book III., Chap. 21, has been generally considered sound by economists. Under given conditions it would be sound. The necessary condition is that prices and rates of foreign and colonial exchanges indicate throughout the whole world one standard substance and measure of value. Now 1,400,000,000 people inhabiting 200 parts of continents and islands of this world have set

before themselves definite weights of gold here and definite weights of silver there as their chief moneys of account, measures of value and most liquid property. These moneys of account are seventeen weights of pure gold, and nine weights of pure silver. But many millions of these 1,400,000,000 people have neither a working gold standard nor a working silver standard, and therefore it is of great importance to know what among each peoples constitutes the price of a thing and the intermediary in international and intercolonial interchanges of properties and raw and manufactured articles.

Most important facts experienced by Experts in the Foreign and Colonial Exchanges of Intermediaries, International and Intercolonial Traders and Financiers.—1,400,000,000 people in different places use seven different descriptions of prices and the same number of different rates of exchange of intermediaries. These intermediaries are :

i. Automatic pure gold.
ii. „ „ silver.
iii. Gold-cum-coinage charge.
iv. Silver „ „
v. „ cum-counter* charge.
vi. Inconvertible paper based on gold.
vii. „ „ „ silver.

**Counter* denotes that by legislation a fictitious value is imparted to the standard substance ; as in British India the rupee—165 troy grains of pure silver—does the work of 235·5 grains of pure silver in the exchanges of intermediaries.

Everything, whether it be raw or manufactured goods, titles to properties, or interest-bearing securities, transmitted from one country to another country for sale or for interchange for other goods or properties, necessarily has the currency of the country as good as weighed out, or counted out, if it is not a weight of metal, for it ; and the thing sent undergoes the same process on reaching the country to which it is sent. Some transactions involve two prices and one rate of exchange—one price in the country sending the

thing and the other in the country receiving it; and a rate of exchange of the intermediaries. Other transactions involve four prices and two rates of exchange. Say goods or property from country A to country B to be exchanged for goods from B to A—this would entail four prices and two rates of exchange: in A price of the thing sent and another of the thing received, in B price of the thing received and another of the thing sent; a rate of exchange for the thing sent from A to B, and another rate for the thing sent from B to A. By no possible device can the action of the exchanges of intermediaries be avoided. It should be noted that any alteration in the ratio between the intermediaries is measurable. These facts should have the serious attention of economists.

The Monetary System of the British Isles: Automatic Pure Gold.—The monetary system in the British Isles is one of pure gold. It is a scientific automatic monetary system in this respect. The substance gold is neither fettered nor favoured. There is no coinage charge. The weight of pure gold presented at the Mint is returned to the presenter of it in the shape of sovereigns and half-sovereigns, and no charge is made for providing and mixing alloy with the pure gold and impressing the lump of metal with its beautiful stamp. Promises to pay money in the shape of Bank of England and other banks' notes are used, as are also tokens for gold in silver and bronze, the former limited to 40 shillings in one payment and the latter to 12 pence in one payment as legal tender. So long as a scientific automatic gold monetary system is maintained in the British Isles it is a fact that for each payment for anything within the country, whether it be £10,000 or one penny, pure gold is as good as weighed out for the thing purchased. There is a remnant of barter in these Isles in the truck system, and the exchange of one thing for another thing without the use of the intermediary. The rate of exchange in the British Isles for each of the other six intermediaries is a definite number of grains or decigrams of pure gold. The number of grains depends for each class of intermediary upon the ratio of the day between the currency

of the British Isles and the currency of any other country possessing one of the other six intermediaries.

The Monetary System of China: Automatic Pure Silver.—On the sea-board of China the monetary system consists of pure silver. The government does nothing to fetter or favour pure silver. I am under the impression that among the alumni in China, money, *real money*, is better understood than it is in other countries. The Abrahamic method of dealing with it is the practice in that land. The mind has never been confused with monetary signs for weights of money. They have no signs to indicate weights of pure silver, for weights alone are used, such as the tael, of variable weight in different parts of the country, the equivalent in English weight ranging from 525·79 to 571·14 troy grains for 9 descriptions of silver taels. The mass of the people use bronze tokens called cash. These have a hole in the centre, and are carried in strings formed of them. There is a very large circulation of promises to pay metal. These bank notes are issued without state authority. It is impossible to make an estimate of the quantity of this kind of paper afloat. On the seaboard all prices are pure silver prices, and weighment of silver is made for things bought and sold. Pure silver is the intermediary in international interchanges of things.

British Indian Present Currency System. Silver-cum-counter Charge.—One of the greatest blessings conferred upon British India by the British Empire was the establishment and upkeep of an effective metal monetary system with an issue of state notes for a number of currency circles, the notes of each circle encashable within each circle only. The breakdown of the unscientific and delusive fixture of ratio between gold and silver in 1873 so dangerously affected the finances of India through the higher silver price of gold, that the Government of British India, with the sanction of the British Government, closed the mints against silver and imposed an import duty on that commodity of 5 per cent. This act destroyed the standard. Under the old regulations

British India never had a scientific automatic silver monetary system such as China has possessed for her international trade, because a charge for coinage of silver into rupees was made of $2\frac{1}{5}$ per cent. by the government. Therefore, the currency of India was a silver-cum-counter charge one. The Government of British India has set before itself to obtain a gold currency in a rupee containing 7·53344 troy grains of pure gold; this weight is $\frac{1}{15}$ of the weight of pure gold in the pound, and the British monetary sign for it is 16 pence. At present the rate of exchange between the British Indian intermediary of silver-cum-counter charge and the British intermediary of pure gold is 1*s.* $3\frac{1}{8}$*d.* for the silver rupee. The present world-wide value of the 165 troy grains of pure silver forming the rupee is 10·6 pence with a falling gold price of silver. This price of 10·6 pence compared with 15·125 pence shows that by legislation a fictitious value of 42·7 per cent. has been conferred upon the rupee as an international and intercolonial intermediary. In other words, as an intermediary in all British India's outside operations the 165 grains of silver in the rupee do the work of 235·5 troy grains to the damage of British India's competitive trade with countries possessing a pure silver currency for similar articles supplied by each to the rest of the world. Professor Lexis, of Germany, thus commented in 1896 upon the action of the closure of the British Indian mints against the reception of silver from the public in 1893: "The Indian Government resolved on the measure it took in 1893 in the hope that it would succeed in making the course of the rupee independent of the price of silver, and to fix it at least at 16 pence. . . . England, indeed, did not grasp the matter even theoretically correctly. It believed that the rise in the value of the rupees could be produced by their greater rarity, or by increasing their purchasing power in the interior; while really there was only a question of influencing the Anglo-Indian rate of exchange." Prices on the sea-board of India may be quoted as silver prices, and if they have advanced at all, it has been out of all proportion to the

altered ratio between gold and silver. In all intercolonial and international interchanges of intermediaries, British India now uses a silver-cum-counter charge currency, and the rate of exchange of the intermediary is a silver-cum-counter charge rate.

Argentine Republic Currency System: Inconvertible Paper based on Gold.—The professed standard of this country is a peso containing on issue from the mint five times the weight of pure gold in the franc, i.e. 22·401795 troy grains. The currency is, and has been for years, inconvertible paper, in which the price of gold has ranged during the past ten years from 110 to more than 450 per cent. premium. The present premium is 210 per cent. To give an instance of what this means, we will compare gold equivalents between the British Isles and the Republic with the rate of exchange between the countries with gold at 210 premium in Argentina. The monetary sign in the British Isles for the weight of gold in the peso is 47·578 pence: the equivalent discount to 210 per cent. premium is 67·53 per cent., the sum is $\frac{210 \times 100}{310}$ =67·53 per cent. discount. This discount applied to 47·578 pence leaves 15·449 pence. Pence 15·449 or 7·27 troy grains of pure gold command a paper peso or a note promising to pay on demand in exchange for the same 22·401795 troy grains of pure gold. This and the last class of currency first described, though having a basis of metal ostensibly, but not always really, are of a most unsatisfactory nature from the wide fluctuations from actual metal equivalents to which they are subject. That these fluctuating ratios between the four intermediaries that we have considered have a serious and most disturbing effect upon international and inter-colonial interchanges of things should be understood and admitted by all. Inconvertible paper prices of all things, including the world's other six currency intermediaries, exist here.

Columbian, U.S., Currency System: Inconvertible Paper based on Silver.—The currency of this and Central and South

American Republics is ostensibly silver. The peso contains five times the weight of pure silver contained in the silver franc, i.e. 347·2278 troy grains. Only a few years ago the British price of a Peruvian paper peso was 4 pence, or 1·88 troy grains of pure gold. Assume that at that time the ratio of silver to 1 of gold was 23 parts, then 1·88 × 23 = 43·24 grains of pure silver. This shows the paper price of silver at a premium of 703 per cent., or the gold price of paper at a discount of 86 per cent. Prices in Columbia were and still are inconvertible paper prices based on silver.

Gold-cum-Coinage Charge and Silver-cum-Coinage Charge Intermediaries are unscientific systems of currency. True money must consist of an unfettered and an unfavoured commodity. A fettered or favoured commodity cannot be true money upon the principles of the sound teachers of money, from Xenophon to the last writer on the lines of Oresme Copernicus and John Locke. In anticipation of the debate in the House of Commons subsequent to the issue of the Gold and Silver Report of the Royal Commission of 1886-9, the writer expressed his expectation and hope as follows :— "Should this debate prove exhaustive, surely the bi-metallic theory will be ground to powder, to be blown away, and never more presented to the human understanding, save as a striking instance of prolonged infatuation, or to point a moral upon the world's vaunted knowledge at the end of the nineteenth century." Eight years have elapsed since this was written, and all currency laws enacted in all parts of the world during this time testify to the opening of men's understanding to the reception of the view that there was never a more dangerous and fallacious idea that legislative enactments can permanently frustrate natural laws. It is a vexed question whether the imposition of a coinage charge adds to the purchasing power of the metal in the country which imposes it; in the writer's opinion it does. There is no question, because all admit that a coinage charge widens the margin of the fluctuation of the exchange of

intermediaries, and to the extent of the charge hamper the international and intercolonial exchanges of things. The coinage charges of the world upon gold and upon silver range from $2\frac{3}{16}$ per mille to 2 per cent.; this last is a very heavy charge on silver. The British Indian coinage charge was $2\frac{1}{5}$ per cent. The British exchange with India before 1873 was, say, 22 pence for a rupee, quotations for business varied by $\frac{1}{32}$ of a rupee, or 1·6 per mille; the coinage charge was nearly $\frac{14}{32}$ of a rupee. Since the coinage charges are fixed ones, there is no disturbing element of uncertainty in them.

These seven descriptions of intermediaries contain, and entail in the foreign and colonial interchanges of them, sixteen Factors. I. Pure gold weights. II. Pure silver weights. III. Monetary signs for pure gold weights. IV. Monetary signs for pure silver weights. V. Currency signs for gold-cum-coinage charge. VI. Currency signs for silver-cum-coinage charge. VII. Currency signs for silver-cum-counter charge. VIII. Currency signs for inconvertible paper. IX. Fluctuating ratios between pure gold and the six other currency intermediaries. X. Fluctuating ratios between pure silver and the six other currency intermediaries. XI. Fluctuating ratios between gold-cum-coinage charge and the six other intermediaries. XII. Fluctuating ratios between silver-cum-coinage charge and the six other currency intermediaries. XIII. Fluctuating ratios between silver-cum-counter charge and the six other intermediaries. XIV. Fluctuating ratios between inconvertible paper based on gold and the six other intermediaries. XV. Fluctuating ratios between inconvertible paper based upon silver and the six other intermediaries. XVI. Forty-nine deviations from par between these seven diverse intermediaries due to transmission charges upon the two standard metals, gold and silver, together with, as a rule, a commission for the dealer in the world's intermediaries. Each country has its own money table—a table by which money is weighed and the weights by which pure gold and pure silver are sold.

The Foreign and Colonial Exchanges of Intermediaries.— We are now in a position to define what these exchanges really are. They are forty-nine in number. I. Gold for gold ; or for II. silver ; or for III. gold-cum-coinage charge ; or for IV. silver-cum-coinage charge ; or for V. silver-cum-counter charge ; or for VI. inconvertible paper based on gold ; or for VII. inconvertible paper based upon silver. VIII. Silver for silver; or for IX. gold ; or for X. gold-cum coinage charge ; or for XI. silver-cum-coinage charge ; or for XII. silver-cum-counter charge ; or for XIII. inconvertible paper based on gold ; or for XIV. inconvertible paper based upon silver. XV. Gold-cum-coinage charge for gold-cum-coinage charge ; or for XVI. gold ; or for XVII. silver ; or for XVIII. silver-cum-coinage charge ; or for XIX. silver-cum-counter charge ; or for XX. inconvertible paper based on gold ; or for XXI. inconvertible paper based upon silver. XXII. Silver-cum-coinage charge for silver-cum-coinage charge ; or for XXIII. gold ; or for XXIV. silver ; or for XXV. gold-cum-coinage charge ; or for XXVI. silver-cum-counter charge ; or for XXVII. inconvertible paper based on gold ; or for XXVIII. inconvertible paper based upon silver. XXIX. Silver-cum-counter charge for silver-cum-counter charge ; or for XXX. gold ; or for XXXI. silver ; or for XXXII. gold-cum-coinage charge ; or for XXXIII. silver-cum-coinage charge ; or for XXXIV. inconvertible paper based on gold ; or for XXXV. inconvertible paper based on silver. XXXVI. Inconvertible paper based on gold for inconvertible paper based on gold ; or for XXXVII. gold ; or for XXXVIII. silver ; or for XXXIX. gold-cum-coinage charge : or for XL. silver-cum-coinage charge ; or for XLI. silver-cum-counter charge ; or for XLII. inconvertible paper based on silver. XLIII. Inconvertible paper based on silver for inconvertible paper based on silver ; or for XLIV. gold ; or for XLV. silver ; or for XLVI. gold-cum-coinage charge ; or for XLVII. silver-cum-coinage charge ; or for XLVIII. silver-cum-counter charge ; or for XLIX. inconvertible paper based on gold.

There is an eighth description of currency. Either gold

or silver, at the option of the payer. This still exists in the countries which aspired to the possession of the substances gold and silver to make one standard in Europe. An unlimited weight of silver is still legal tender in discharge of any debt or for any purchase in France, Italy, Belgium, Switzerland, and Greece. But this optional payment of either metal at the will of the debtor has ceased in international interchanges. The standard metal for international operations and obligations is gold in France, Belgium, and Switzerland.

One Metal Intermediary for the whole World.—We will turn from these forty-nine interchanges of seven intermediaries, also the sixteen factors embraced in them, in use in the world, to what may be in the distant future. Imagine that each empire, kingdom, republic, and island on the earth possessed a scientific automatic gold monetary system ; that everywhere there is the same table of gold weight ; that monetary signs had gone for ever ; and that prices and rates of exchange for the one intermediary are quoted and worked in weight. Then two factors will have taken the place of the present fifteen factors : I. weight ; II. deviation from par in the shape of premium or discount, i.e. greater or less weight of gold for transmission charges on the metal and a commission for the dealer in the foreign and colonial exchanges of the one intermediary. The advantages from such a change as this can be easily perceived.

With only one intermediary for the whole world the fluctuation in the exchanges, were the substance gold, would be confined within a very narrow margin, at present something like $1\frac{1}{2}$ to 2 per cent. between the most distant ports. Whereas now the fluctuation resulting from the use of the four great diverse intermediaries ranges from 1 to 200 per cent. The conditions of barter would be preserved had the world but one intermediary. Now the destruction of industries is threatened through the bonus conferred by bad intermediaries. It is true that all countries are exerting their best to get rid of bad intermediaries. It is to be hoped they

will not find it more difficult than any of them have as yet imagined. So far the experience of the past has shown that without certain conditions it is impossible to retain a gold standard. It may be secured at great cost for a time, but repeated failures have followed such temporary success because the permanent conditions necessary for its maintenance have been wanting.

Every one can see that there would be no use for this "Ready Reckoner of the World's Exchanges" if the whole world had but one currency intermediary. The possession of the substance, gold; its weight as the price of a thing, and the intermediary, with its tokens and promises to pay the gold on demand with the certainty of its being fulfilled, and a slight deviation from par for transmission charges and commission to the dealers in the intermediary, would bring prices and the foreign and colonial changes within the comprehension of children in one lesson. And some may say, having reached this simplicity, cannot it be safely extended? Do away with a substance for a measure of value. Let the whole world do its business on labour tickets issued by the state or states. In reply to this it may be advanced that a substance as a measure of value is absolutely requisite—at least, it appears so to the writer. He would repeat the question he asked in 1895: "Can anyone think out an intermediary which shall not in itself be a valuable commodity, yet fulfil the conditions of barter, and act as fairly and satisfactorily as one measure of value would for the whole world?" If there is such a genius, it is to be hoped he will come forward and produce it, and should the desired effect in the world follow, he shall have the niche reserved for him in its "Walhalla." To the objections the writer has raised against labour tickets in the "Accountant," 1895, he would add here the impossibility of one universal ticket; or of adjusting a fixed circulating ratio between the different issues of them.

I believe that there is satisfactory proof that if the whole world had only *one* intermediary of value, desired and

accepted by all as the most liquid wealth, the mechanism of the interchanges of things between individuals and different communities would be that of barter, wherein no intermediary is used ; or through the instrumentality of one intermediary. At present the mode is by the use of *seven* intermediaries, five of which are of the most diverse characters, or by barter. It is a significant and most important part of this work which treats of this subject.

Exchangeable Things.—It may be asked, What are the exchangeable things upon which the mechanism of these intermediaries are being practised ? Perhaps it may be said that the countless millions of exchanges of things carried out daily throughout the world can be included under the following terms :—I. Services of the minds of mankind. II. Services of the limbs of mankind, aided by tools, machinery, and beasts of burden. III. Portions of the earth. IV. Raw products. V. Manufactured products. VI. Animals. VII. Interest-bearing securities and titles to properties not bearing interest.

There is, no doubt, in every country a very large interchange of services for services or for other things, and of other things for other things or for services without any reference whatever to one or other of the seven descriptions of intermediaries, but such exchanges are less in number as the condition of social life improves. The last work of our great synthetic philosopher, Herbert Spencer, affords most interesting study on this subject, for he shows the root and growth of interchanges of things so far as the present teaching of economists has led him. In the index to the volume under "money" will be found "food as, and clothes, ornaments and weapons, and implements, shells and beads, and labour, coins and prices, paper currency, and capital." That a few of these eleven things have been and still are used as measures of value, and therefore come under the scientific description of money, nobody would deny. Such of these things as are used as standard substances appropriated to currency purposes containing correlative value with

the things for which they exchange may fairly come under the nomenclature of money, but it is difficult to see how they could all be so brought. The writer ventured a few years ago to tell two of our prominent British professional economists that he did not believe they would understand or could teach the subject of money until they consented to limit the definition of it to the standard substance appropriated to currency purposes in the shape of bullion and coin. Bagehot, who is a deservedly respected authority on economics, has a dogma: "That in the event of a fall in the gold price of silver there would be a rise of prices of things generally in silver standard countries." Experience since 1873 has completely disproved this with reference to India." An adjustment had to be made in prices somewhere to the altered ratio of silver to gold, and as between British India and the British Isles it took its shape in a fall of prices in the latter country.

TABLE I.

Norman's Unit of Weight System together with all the needful information—excepting per centage fluctuating charges for movement of standard metals, coinage, and commission—for working the exchanges of gold for gold or for silver, and of silver for silver or for gold, all down the ages since the use of the commodities gold and silver as measures of value and means of payment, and the introduction of chief moneys of account and coins to be counted out instead of the weighment out of the monetary metals gold and silver for anything.

Col. I. Names of the chief countries using the moneys of account. Col. II. Monetary signs for the world's chief moneys of account. Col. III. Gross weights of moneys of account in troy grains on issue from the mints. Col. IV. Troy grains of pure gold and pure silver. Col. V. Monetary signs for one troy grain of pure gold and for pure silver. Col. VI. Ratio of silver to one of gold in the currencies of each country. Col. VII. Constants to determine the fluctuating ratios between gold and silver upon the gold price of silver of the day in gold standard countries and upon the silver price of gold in silver standard countries. The gold price must be used as the divisor of the constant. The silver price must be divided by the constant. In each case the result will be the ratio of silver to one of gold. Col. VIII. Parts of pure gold to pure silver in 1000 parts of metal wherewith each chief standard money of account is made. [a] Attached to the name of a country means that at present the currency there is inconvertible paper ; [b] attached means that the currency consists of silver-cum-counter charge.

GOLD.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.	Col. VII.	Col. VIII.
I. Egypt	Pound	131·174958	114·778088	8·712464 ochrs.	15·00	498·330 piastres	875 pure gold
II. British Isles	,, or Sovereign	123·274478	113·001605	2·123863 pence	14·287	942·9955 pence	916·666 or $\frac{11}{12}$,,
III. Turkey	,, or Medjedie	111·3598	102·079887	39·1848 paras	15·10	4541·649 paras	,, ,, ,,
IV. Portugal [a]	Milreis	27·3965	25·088524	39·858849 reis	14·09	615·116 milreis	,, ,, ,,
V. Uruguay [a]	Peso	26·1887	24·015034	4·164058 centesimos	14·40	642·611 pesos	917·900 ,,
VI. United States, N.A. ...	Dollar	25·8000	23·220000	4·306632 cents	16·00	2067·183 cents	900 or $\frac{9}{10}$,,
VII. Argentina [a]	Peso	24·890640	22·401795	4·463928 centesimos	15·50	688·888 pesos	,, ,, ,,
VIII. Chile	,, ...	23·534331	21·180897	4·720306 ,,	16·39	728·590 ,,	,, ,, ,,
IX. Russia	Rouble	19·010817	17·919736	5·580439 copecks	15·4	352·668 roubles	,, ,, ,,
X. Brazil [a]	Milreis	13·8348	12·681957	78·85223 reis	14·22	1216·874 milreis	916·666 or $\frac{11}{12}$,,
XI. Austria-Hungary [a] ...	Florin	10·455417	9·409875	10·627134 kreutzers	18·22	820·008 florins	900 or $\frac{9}{10}$,,
XII. Holland	Guilder	10·370543	9·333489	10·714112 cents	15·60	1653·440 guilders	945 ,,
XIII. British India [b]	Rupee	8·218298	7·533440	2·123863 annas	21·902	382·295 annas	916·666 or $\frac{11}{12}$,,
XIV. Scandinavia	Krone or Crown ...	6·9141	6·222721	16·070140 ores	14·88	1240·000 crowns	900 or $\frac{9}{10}$,,
XV. Germany	Mark	6·1458	5·531340	18·078906 pfennigs	13·95	1395·000 marks	,, ,, ,,
XVI. France	Franc	4·978128	4·480359	22·31964 centimes	15·5	3444·444 francs	,, ,, ,,

The weight of gold in the franc is the chief money of account under names attached to the following countries: Italy,[a] lira; Greece,[a] drachma; Roumania,[a] lei; Bulgaria, lev; Servia,[a] dinar; Roumelia, ley; Spain,[a] peseta; Finland, mark; Argentina, 1 peso = 5 francs. Russia has coined roubles of about 12 troy grains of pure gold; it remains to be seen what the money of account of that country is going to be. Austria-Hungary has a new gold coin of half the weight of that above; the remark on Russia is applicable also with regard to this country and Chile. This latter country has a new coin of 8·475112 troy grains of pure gold. The new gold coin for the gold monetary system of Japan is to be 7·5 troy grains of pure gold.

Silver.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.	Col. VII.	Col. VIII.
I. Shanghai	Tael weight ...	...	516·405843	1·9364 cash	...	1·11067 tael	
II. Mexico	Peso or Dollar ...	417·6657	377·0586	·2652 of a cent	16·309	40·92825 peso	$902\frac{7}{10}$ pure silver
III. Japan	Yen	416·0000	374·4000	·26709 ,, sen	16·173	15·4836 yen	900 or $\frac{9}{10}$,,
IV. Java[b]	$2\frac{1}{2}$ Guilders ...	385·8087	364·5892	·27428 ,, cent	...	...	945 ,,
V. Philippines	Dollar	400·6253	360·5614	·2773 ,, ,,	15·79	42·8008 dollars	900 ,, ,,
VI. Columbia, U.S.[a]	Sol	385·8087	347·2278	·288 ,, ,,	15·50	44·4444 sol	,, ,, ,,
VII. Bolivia	Boliviano	347·2278	312·5050	·3199 ,, ,,	...	...	,, ,, ,,
VIII. Russia	Rouble	308·5806	277·7221	·36007 ,, copeck	15·	22·753 rouble	,, ,, ,,
IX. Siam	Tical	234·2711	206·285	·1551 ,, phai-nung	...	1·144 tical	
X. Austria-Hungary	Florin	190·5231	171·4708	·5832 ,, kreutzer	15·30	45·000 florin	,, ,, ,,
XI. British India[b]	Rupee	180·0000	165·0000	1·163636 pie	15·00	1·0909 rupee	916·666 or $\frac{11}{12}$,,
XII. Persia	Kran	70·774	63·0316	·3173 shahis		2·255 kran	

The Chinese are preparing silver dollars which are to be $\frac{72}{100}$ of the tael $\frac{9}{10}$ pure silver. The gross weight should be 443·535407 troy grains, and the weight of pure silver 371·812207 troy grains. In Siam 5 ticals are by law made equal to 3 Mexican dollars. This would make the pure silver in the tical 226·2352 troy grains. Muhleman, a present day American authority, states that it is nominally 213·875 troy grains of pure silver.

CHAPTER III.

A table of gross and pure weights in troy grains of 16 gold and 12 silver chief moneys of account of the world, with all necessary information for working the world's exchanges between effective gold and silver monetary systems—Norman's Unit of Weight System—Ratio between gold and silver—Construction and use of the Column of Constant—International interchanges upon the terms and conditions of barter through the use of one universal intermediary—Table of ratios between gold and silver in British prices, from the ratio of 14·73 of silver to 1 to 103·77 to 1 of gold. American and Japanese tables showing at a given date these countries valuations of foreign coins.

THE weight of the sol is used under different names. Ecuador, sucre; Costa Rica, Guatemala, Honduras, Nicaragua, and Columbia, under the name peso. The French metric system of money is used in all the countries of Europe, except Russia and Turkey. In Central and the whole of South America, except British and Dutch Guiana and British Honduras, also in Mexico. Troy weight is used in the British Isles, Canada, West India Islands, Australasia, and the United States of North America. It will be noticed that there are in this table 16 gold and 12 silver weights, but Austria, Russia, and British India appear both under gold and silver. There is no standard in British India. A standard cannot exist unless the mints are open to receive and coin the professedly standard metal, and by actually coining it and making prices through it. The aim is that prices in British India should become gold prices instead of silver prices as they were until 1893, and still are. The currencies of Russia, Austria-Hungary, Chile, and Japan are in a transition and experimental state. Some of them have something more than a mythical gold standard. Gold coins of the weights desired have been made by these countries.

The test of an effective metal monetary system is meeting any demand for the encashment of state promises, or promises which should be as good as state promises, to pay them by making the exchange for them in the weight of standard substance promised without question, delay, or expense. Can it be expected that very shortly now it will be the happy experience of those four countries to meet their promises in gold? Current history is full of experiences of temporary effected metal currency systems procured at the cost of increase of national debt and a speedy loss of the same from one cause or another. One great cause is the condition of international interchanges rendering it impossible for a country to retain its standard substance which is its most liquid wealth. With this table before us, it may be best to enter fully into it, and thus prepare the mind for the interchanges of the intermediaries pure gold and pure silver. After this we can go on to the Foreign and Colonial Exchanges of the World's present seven intermediaries, and endeavour to unfold the so-called mysteries of these exchanges.

It is necessary to make a very careful investigation into the structure and use of Cols. IV., V., and VII.

Col. IV.—Mint issue weights in troy grains of pure gold and pure silver in the world's chief moneys of account. These weights are obtained by taking the proportions of fine metal indicated in Col. VIII. and applying them to the gross weight in Col. III., thus, against the Egyptian pound is found in Col. VIII. that the pure gold in that pound is 875 parts in 1000 parts. The sum is $131{\cdot}174958 \times 875 \div 1000 = 114{\cdot}7778088$ troy grains of pure gold. Against the British pound $\frac{11}{12}$ pure gold is found in Col. VIII. One-twelfth deducted from the gross weight of the British pound Col. III., $123{\cdot}274478 - \frac{1}{12} = 113{\cdot}001605$ troy grains of pure gold. The use of pure metal is of vast importance in reducing to the utmost simplicity the foreign and colonial exchanges of pure gold and pure silver intermediaries by the mode of using the chief moneys of account. Fixed pars or equivalents between gold moneys of account (17) are nothing

more than different monetary signs for the same weight of pure gold. Between silver moneys of account there are different monetary signs for the same weight of pure silver. The division of one weight of pure metal indicated by the monetary sign of another weight of the same metal indicated by another monetary sign gives the desired monetary sign which is par or the equivalence sought for. Thus, it is desired to know the fixed par or equivalent in French gold for the British pound both at mint issue weight. The sum is (see Col. IV.) pound 113·00615 ÷ franc 4·480359 = 25·22.155c., thus 25 francs 22·155 centimes, and is the monetary sign for 113·001605 troy grains of pure gold in France. It is desired to know fixed par at mint issue weight between the British Isles and France, the sum is 4·480359 ÷ 113·001605 = £·039648 or 9·515 pence, this is $9\frac{1}{2}$ pence for one franc. The simplicity and the beauty of this mode of arriving at fixed pars is most pronounced when it is placed in juxtaposition with the Cambists' method of arriving at fixed pars.

EXAMPLE FROM TATE'S MODERN CAMBIST.

? = £1

£1869 = 480 ounces troy $\frac{11}{12}$ standard

One ounce standard = 31·10349552 grams $\frac{11}{12}$

Grams standard 12 = 11 grams fine

Grams fine 900 = 1000 grams French coin

Grams 1000 = 3100 francs

$$\frac{480 \times 31{\cdot}10349552 \times 11 \times 1000 \times 31{\cdot}00}{1869 \times 12 \times 900 \times 1000} = \text{francs } 25{\cdot}22\tfrac{3}{20}$$

NORMAN'S METHOD.

113·001605 ÷ 4·480359 = francs 25, 22·155 centimes. The statement in the Cambists' method of arriving at the par of exchange comprises 6 equivalents and 45 figures, Norman's 17 figures. In working out the different sums the Cambists employ 157 figures, Norman's method 95 figures. The

writer's "Guide to sailors and travellers" presents these unchanging equivalents 15 for each of the world's 16 gold moneys of account and 8 for each of the world's 9 silver moneys of account. In this Guide also is a table of the equivalents of the 9 silver moneys of account to each of the world's 16 gold moneys of account in the proportion of 1 part of silver to 1 part of gold. The construction of this table, with its use, will be described later on.

Norman's Unit of Weight System.—The writer and many others, first of whom, Dr. Linderman, Mint Master of the U.S.A. in 1875, and later many well-known economists, have found that this most powerful factor is the key to the science of money. It is a tool to unmask monetary and currency signs and to reveal the weights of pure gold and pure silver indicated by such signs. To do this another sign has to be made and the weights of the world's chief moneys of account and tokens for money converted into one system of money weights. Cols. III. and IV. present these weights in troy grains. This other sign is found for one troy grain of pure gold and pure silver, and in Col. V. is attached to each chief money of account. Each monetary sign for one troy grain of pure metal is obtained by dividing the small change for each money of account such as the pence in the British pound, the cash in the tael, the centimes in a franc by the weight of pure gold or pure silver in each of the 25 chief moneys of account.

The foreign and colonial exchanges of intermediaries are always based upon the mint issue weight of pure gold or of pure silver in the world's chief moneys of account. It is so whether the currency at the time consists of either of the five different descriptions of currency besides pure gold and pure silver currencies.

Rules and Examples—

I. To find the gold monetary sign for one troy grain of pure gold. Divide the units of the money of account in the country for which the investigation is made by the weight of pure gold in the chief standard money of account on issue from the mint, and the result will be the answer.

Thus there are 240 pence in a sovereign, and there are 113·001605 troy grains of pure gold in the sovereign, the sum is

240 ÷ 113·001605 = 2·123863 pence monetary sign for one troy grain of pure gold.

II. To find the silver monetary sign for one troy grain of pure silver. Divide the units of the money of account in the country for which the investigation is made by the weight of pure silver in the chief standard money of account on issue from the mint, and the result will be the answer.

Thus there are 100 centesimos in a Mexican peso, and there are 377·0596 troy grains of pure silver in the peso, the sum is

100 ÷ 377·0596 = ·2650 centesimos the monetary sign for one troy grain of pure silver.

III. To find the variable gold price of one grain of pure silver, the gold price per ounce or other weight of silver must be divided by the weight of pure silver bought to obtain the answer.

Thus, say the price of silver in the British Isles is 27 pence per ounce or 444 troy grains, the sum is

27 ÷ 444 = ·06081 of a penny per troy grain.

IV. To find the variable silver price of one troy grain of pure gold the silver price of gold must be divided by the weight of pure gold bought to obtain the answer.

Thus, say that in Mexico the price of gold is 1390 pesos per kilogram or 15432·34 troy grains, the sum is

1390 ÷ 15432·34 = ·09 or 9 centesimos per troy grain.

This factor is used both as a divisor and a multiplier. As a *divisor*. Find the weight of pure gold indicated by £3 17*s*. 10½*d*. The sum is £3 17*s*. 10½*d*. or 934·5 pence ÷ 2·123863 pence = 440 troy grains, ans. The British standard ounce of gold contains 440 troy grains of pure gold and 40 troy grains of alloy. As a *multiplier*. Find the British monetary sign for 440 troy grains of pure gold. The sum is 440 × 2·123863 = 934·4997 pence or £3 17*s*. 10½*d*.

Ratio between Gold and Silver.—Another very valuable tool which the writer has brought into prominence is the use of

the constantly varying ratio between gold and silver. Before 1873 this ratio fluctuated round 15½ parts of silver to 1 part of gold, due to the very unscientific attempt to make one permanent measure of value out of two substances which were always varying in relative cost of production. That the mint arrangements of the world were of such a nature as to hold these substances for currency purposes at about this relation, the writer has never doubted; but the effect of it was to confer a monopoly value upon silver to the enrichment of the silverites, and at the cost of the rest of the world. On the closure of the mints of Europe against the reception of silver from the public this ratio became higher, and on the closure of the British Indian mints against silver from the public and the imposition of a 5 per cent. duty on silver imported into British India, the ratio became much higher, until to-day it stands at 31·63 parts of silver to 1 part of gold. But this is not the highest which is to be expected. It is very probable that the natural ratio between the two metals is near to 60 parts of silver to 1 part of gold. This daily ratio between the metals is one of the most important pieces of information the commercial world can possess. This was realized by Mr. Ellis, the late city editor of the *Times*, but there appear to be objections to its publication in that paper, as it is not yet inserted. It is true that the *Times* and all papers giving news of the London markets quote the daily price of silver, and that the ratio can be easily ascertained from the gold price of silver. The mode is simply the division of a constant 942·9955 in the British Isles by the price of silver of the day in pence, and the result is the ratio. Two weekly papers were the first in London to insert the ratio for six days, now two corn papers give the ratio daily. To return for a moment to the silver currency used as tokens for a weight of gold in these islands. The coining ratio between the metals is 14·287 of silver to 1 of gold. With this knowledge, the weight of gold in the sovereign being known, the weight of pure silver in each class of tokens is readily ascertained. It is desired to know the mint issue weight of pure silver equivalent to the pound

at this ratio, the weight of gold multiplied by the ratio gives the weight of pure silver in twenty shillings equivalent to the weight of gold. The sum is 113·0010605 × 14·287 = 1614·45 troy grains of pure silver; $\frac{1}{20}$ of this shows that the mint issue weight of pure silver in the shilling is 80·72 troy grains. Twenty shillings to be of equivalent value to the gold in a sovereign to-day should at the present ratio contain 3574·24 troy grains of pure silver, and the shilling 178·71 troy grains of pure silver.

TABLE II.

TABLE OF RATIOS OF SILVER TO 1 OF GOLD AT FLUCTUATING LONDON PRICES OF ONE STANDARD OUNCE, OR 444 TROY GRAINS OF PURE SILVER. COL. I.—PRICE OF SILVER IN PENCE. COL. II.—RATIO RESULTING FROM THE PRICE ATTACHED.

Col. I.	Col. II.	Col. I.	Col. II.	Col. I.	Col. II.	Col. I.	Col. II.
d.		*d.*		*d.*		*d.*	
64	14·73	26¾	35·25	22¾	41·45	18¾	50·29
60	15·71	½	35·58	½	41·91	½	50·97
50	18·86	¼	35·92	¼	42·38	¼	51·67
40	23·57	26	36·27	22	42·86	18	52·39
30	31·34	¾	36·62	¾	43·36	¾	53·13
¾	31·70	½	36·98	½	43·86	½	53·88
½	31·97	¼	37·34	¼	44·32	¼	54·61
¼	32·24	25	37·72	21	44·90	17	55·48
29	32·52	¾	38·10	¾	45·44	16	58·94
¾	32·80	½	38·49	½	46·00	15	62·86
½	33·09	¼	38·88	¼	46·56	14	67·36
¼	33·37	24	39·29	20	47·15	13	72·54
28	33·68	¾	39·71	¾	47·75	12	78·58
¾	33·98	½	40·12	½	48·36	11	85·73
½	34·29	¼	40·56	¼	48·98	10	94·30
¼	34·60	23	41·00	19	49·63	9	103·77
27	34·92						

The assayer to the British Mint furnished an estimate of the average cost of the production of silver to the Royal Gold and Silver Commission, 1886-9, per 17 pence per standard ounce.

Construction and use of the Constant, Column VII.—The purchase of silver in an effective gold system and the urchase of gold in an effective silver system is just the same as weighing out one metal against the other. You have in each one a monetary sign for a definite weight of the other

metal. Strip off the sign and the weight appears. Thus, silver is sold here per standard ounce or 444 troy grains of pure silver. The price to-day is 29¾ pence per 444 troy grains. What weight of gold does 29¾ pence indicate? Divide the price by the monetary sign for one troy grain of gold, and the result gives the grains; the sum is 29·75 ÷ 2·123863 pence = 14·007 troy grains of pure gold. To find the ratio, the silver [for which the price is quoted must be divided by the gold, and the ratio is the answer. The sum is 444 ÷ 14·007 = 31·70 parts of silver to 1 of gold. Under gold the figures are arrived at by giving the monetary signs for grains of pure gold; the grains are taken of the same number as those of silver for which the price is quoted. The result is the same whether the gold monetary sign for a weight of gold be compared with a gold monetary sign for the same weight of silver, or the actual weights of gold and silver indicated by the signs are compared. The British Constant is 942·995, because this is the British sign for 444 troy grains of pure gold, 942·995 pence. With this factor and a price of 29¾ pence we can check the comparison of weights just given. The sum is 942·995 ÷ 29·75 = 31·70. The result is the same as dividing the weight 444 grains of silver by 14·007 troy grains of gold. Take Japan as an instance of the use of the Constant in countries possessing a silver standard. Gold is sold in Japan per 100 mommes or 5797·0632 troy grains. The Japanese monetary sign for this weight of silver is 15·4836 yens. In this case the Constant is the Japanese monetary sign for 5797·0632 troy grains of pure silver. But as the price is for pure gold the Constant is used as the divisor of the Japanese price of gold, and consequently the result is the ratio of silver to one of gold. Say the price of 100 mommes of gold in Japanese is 495·475 yens, what ratio does this establish between gold and silver? The troy grains of pure silver indicated by 495·475 yens must be found and comparison of that weight with 5797·0632 troy grains of gold instituted. The sum is 495·475 yens ÷ ·26709 of a sen, the Japanese monetary sign for one troy grain of silver = 185·508 troy grains of silver.

This weight of gold, viz. 579·0632 troy grains, divided by the weight of silver gives a ratio of 32 of silver to 1 of gold. Check this by the use of the Constant 495·475, the price divided by the Constant 15·4836 gives the ratio of 32 parts of silver to 1 part of gold. The ratio applied to tables specially constructed for the purpose would save much time in determining the equivalent of gold to silver and of silver to gold. A gold table giving the 144 equivalents in monetary signs for the nine silver moneys of account, and a silver table giving the 144 equivalents in monetary signs for the sixteen gold moneys of account at the ratio of one part of silver to one part of gold effects this upon the application of the ratio of the day to the gold table as a divisor, and to the silver table as a multiplier. Take two illustrations of the working of such tables. Say it is desired to know the equivalent for one tael in a British pound or pence at 31·63 parts of silver to 1 of gold. Under Britain and against tael there would be found in the gold table both £4·588921 and 1101·34 pence, these two sums divided by the ratio 31·63 give respectively £·14508 and 34·82 pence. Check this by the unit of weight system. The gold equivalent to the silver in the tael and that multiplied by the British monetary sign for one troy grain of gold will give the answer. The sum is 518·5555 ÷ 31·63 × 2·123863 = 34·81 pence. It is desired to know in Japan the equivalent to one U.S.A. dollar at 31·63 parts of silver to 1 of gold. Under Japan and against U.S.A. will be found the Constant ·0620192 of a yen, this multiplied by 31·63, the ratio, gives yen 1·96, and shows that at this ratio the equivalent Japanese money for the American dollar is 1·96 yen. Check this by the unit of weight system. The weight of gold in the dollar multiplied by the ratio and the result divided by the weight of silver in the yen gives the answer. The sum is 23·22 × 31·63 ÷ 374·4 = yen 1·96. These calculations are made very easy by the presentation of the multiples of the 16 gold weights of pure gold and monetary signs for the same, and 8 silver weights of pure silver and monetary signs for the same, to be found in the writer's "Ready Reckoner of the World's Exchanges."

For the conversion of gold moneys of account into silver moneys of account, and of silver moneys of account into gold moneys of account, short methods, both based upon the gold table, refer to Table VII. of the "Guide to Sailors and Travellers." As instances of the working of this method we will apply it to the exchanges of a tael for sterling and Japanese money for an American U.S.A. dollar. The British sign for a tael at one part of silver to one part of gold is £4·588. The sum is £1 ÷ 31·63 × 4·588 = 34·80 pence. For the exchange of a U.S.A. dollar for Japanese money, at the ratio of one to one the U.S.A. monetary sign for one yen is 16·124 dollars. Take one dollar, multiply it by the ratio, and divide by 16·124, the result will be the answer. The sum is 1 × 31·63 ÷ 16·124 = 1·96 yen. With these factors and tools shown in Columns IV., V., and VII., and in the "Sailors' and Travellers' Guide," and in the "Ready Reckoner of the World's Exchanges," all the tables of fixed and absolute pars shown in the writer's books of 1892 and 1893 can be produced by any accurate worker of decimals. It is sometimes proposed, by intelligent people even, that the requirement of the world is an universal coin. Professor Ingram, of the Dublin University, has informed me that Archbishop Whately worked at this, and went so far as to produce what he considered might be used as an universal coin, but it was so spoilt in the making that he gave the matter up. When the world comes to one intermediary substance as its measure of value and means of payment, and the subject of money is generally understood, no one will be perplexed by different monetary signs for it. Different names for different weights may continue, the thing signified being universally the same substance. The abolition of monetary signs and the use of one weight measure would be the true volapuk of money. But at present the world has seven different intermediaries constituting prices, and rates of exchange of the intermediaries, based on 24 different weights of pure gold and pure silver. It is absolutely unnecessary to add a 25th weight. All that is requisite is to obtain a knowledge of that which we possess, and to effect this the writer does not

hesitate to reiterate his views till they are taken up, and taught with geography as children can comprehend them.

Will the reader seriously reflect that if the whole world had but one scientific automatic monetary system, if it threw off monetary signs and used the same weight table, there would be but two factors in prices and exchanges of intermediaries. I. **Weight.**—Comparative prices thus indicated would be discovered at a glance, and so would comparative rates of exchange. II. **Deviation from par** in the exchange of the intermediary, a percentage premium or discount. But from the universal use of one substance would flow that which is of incalculably greater importance in the conduct of international interchanges upon the terms and conditions of barter. Under present conditions this desideratum cannot be attained. The constantly varying ratios between five vastly diverse intermediaries precludes it, and effects serious, even threatening destructive, injuries to industrial enterprises through the use of these diverse intermediaries.

TABLE III.

VALUATION OF FOREIGN COINS OCTOBER 1ST, 1896, BY THE MINT AUTHORITIES OF THE UNITED STATES, N.A. THE RATIO OF SILVER TO 1 OF GOLD WAS IN JANUARY, 1896, 30·455; IN APRIL, 1896, 30·332; JULY, 1896, 30·088; AND IN OCTOBER, 30·518. COL. I.—NAME OF COUNTRY. COL. II.—THE STANDARD POSSESSED OR AIMED AT WITH THE PRESENT CURRENCY. I.P. DENOTES INCONVERTIBLE PAPER. A. DENOTES A CURRENCY CONSISTING OF SILVER WITH A COUNTER CHARGE. COL. III.—NAME OF CHIEF MONEY OF ACCOUNT. COL. IV.—U.S.A., MONETARY SIGN IN CENTS FOR A WEIGHT OF PURE GOLD. COL. V.—THE WEIGHT OF GOLD INDICATED BY THE MONETARY SIGNS IN COL. IV., AND THE WEIGHT OF SILVER INDICATED BY THE MONETARY SIGNS IN COL. IV. AT THE RATIO OF 30·518 PARTS OF SILVER TO 1 PART OF GOLD. G. FOR GOLD. S. FOR SILVER.

OCTOBER 1ST, 1896. RATIO OF SILVER TO 1 OF GOLD 30·518.

Col. I. Country.	Col. II. Standard present Currency.	Col. III. Monetary Unit or Chief Money of Account.	Col. IV. U.S.A. Monetary sign for Weight. c. cents.	Col. V. Weight.
I. Argentina	G. I.P.	Peso	96·5 c.	22·40 G.
II. Austria-Hungary	G. I.P.	Crown	20·3 „	4·70 „
III. Belgium	G.	Franc	19·3 „	4·48 „
IV. Bolivia	S.	Boliviano	49· „	347·22 S.
V. Brazil	G. I.P.	Milreis	54·6 „	12·68 G.
VI. Costa Rica	S.	Peso		
VII. Guatemala	„	„		
VIII. Honduras	„	„	49· „	347·22 S.
IX. Nicaragua	„	„		
X. Salvador	„	„		
XI. Chile	G.	„	36·5 „	7·47 G.
XII. China :—				
Amoy	S.	Tael	79·3 „	561·93 S.
Canton	„	„	79· „	559·79 „
Chefoo	„	„	75·8 „	537·14 „
Chinkiang	„	„	77·4 „	548·47 „
Fuchan	„	„	73·3 „	519·42 „
Haikwan	„	„	80·6 „	571·14 „
Hankow	„	„	74·2 „	525·79 „
Hongkong	„	„	53·2 „	376·99 „
Niuchwang	„	„	74·3 „	526·50 „
Ningpo	„	„	76·2 „	539·95 „
Shanghai	„	„	72·4 „	513·04 „

Col. I. Country.	Col. II. Standard present Currency.	Col. III. Monetary Unit of Chief Money of Account.	Col. IV. U.S.A. Monetary sign for Weight, c. cents.	Col. V. Weight.
Swatow	S.	Tael	73·2 c.	518·71 S.
Takao	„	„	79·8 „	565·47 „
Tientsin ...	„	„	76·8 „	544·23 „
XIII. Columbia	„	Peso	49· „	347·22 „
XIV. Cuba	G. I.P.	„	92·6 „	21·50 G.
XV. Denmark	G.	Crown	26·8 „	6·22 „
XVI. Ecuador	S.	Sucre	49· „	347·22 S.
XVII. Egypt	G.	Pound	494·3 „	114·77 G.
XVIII. Finland	„	Mark	19·3 „	4·48 „
XIX. France	„	Franc	19·3 „	4·48 „
XX. German Empire	„	Mark	23·8 „	5·53 „
XXI. Great Britain ..	„	Pound	486·65 „	113·00 „
XXII. Greece	G. I.P.	Drachma	19·3 „	4·48 „
XXIII. Haiti	S.	Gourde	96·5 „	683·81 S.
XXIV. British India ...	S. A.	Rupee	23·3 „	165·1 „
XXV. Italy	G. I.P.	Lira	19·3 „	4·48 G.
XXVI. Japan...	S.	Yen { G.	99·7 „	23·15 „
		Yen { S.	52·8 „	374·15 S.
XXVII. Liberia	G.	Dollar	100· „	23·22 G.
XXVIII. Mexico	S.	Peso dollar	53·2 „	376·98 S.
XXIX. Netherlands ...	G.	Florin	40·2 „	9·33 G.
XXX. Newfoundland...	„	Dollar	101·4 „	23·54 „
XXXI. Norway	„	Crown	26·8 „	6·22 „
XXXII. Persia	S.	Kran	9· „	63·77 „
XXXIII. Peru	S. I.P.	Sol	49· „	347·22 S.
XXXIV. Portugal	G. I.P.	Milreis	108· „	25·08 G.
XXXV. Russia	S. I.P.	Rouble { G.	77·2 „	17·91 „
		Rouble { S.	39·2 „	277·77 S.
XXXVI. Spain...	G. I.P.	Peseta	19·3 „	4·48 G
XXXVII. Sweden	G.	Crown	26·8 „	6·22 „
XXXVIII. Switzerland ...	„	Franc	19·3 „	4·48 „
XXXIX. Tripoli	S.	Mahbub	44·2 „	313·20 S.
XL. Turkey	G.	Piastre	4·4 „	1·02 G.
XLI. Venezuela... ...	„	Bolivar	19·3 „	4·48 „

The Japan *Weekly Mail* of December 2nd, 1896, published the following Japanese valuation of foreign money for the purpose of calculating the values of imports, said valuation to be in force until March 31st, 1897.

TABLE IV.

COL. I.—NAMES OF COUNTIES. COL. II.—NAMES OF CHIEF MONEYS OF ACCOUNT. COL. III.—JAPANESE MONETARY SIGNS IN SENS FOR WEIGHT OF PURE SILVER AT MINT ISSUE WEIGHT OF THE YEN. COL. IV.—WEIGHT OF GOLD, G., OR SILVER, S., INDICATED BY MONETARY SIGNS IN COL. III. COL. V.—WEIGHT OF GOLD OR SILVER INDICATED BY THE MONEYS OF ACCOUNT GIVEN IN COL. II. COL. VI.—RATIO OF SILVER TO 1 OF GOLD. T. TROY GRAINS.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.
I. Austria-Hungary *	Krone	39·5 Sens	147·893 T.S.	4·7049375 T G.	31·433
II. Belgium	Franc	37·6 ,,	140·780 ,,	4·480359 ,,	31·419
III. British India * ...	Rupee	57·1 ,,	213·785 ,,	165· T.S.	27 % pm. on Silver
IV. Denmark	Crown	52·2 ,,	195·439 ,,	6·222721 T.G.	31·407
V. France	Franc	37·6 ,,	140·780 ,,	4·480359 ,,	31·419
VI. Germany	Mark	46·4 ,,	173·723 ,,	5·531340 ,,	31·407
VII. Great Britain ...	Pound	947· ,,	3543·375 ,,	113·001605 ,,	31·598
VIII. Italy *	Lira	37·6 ,,	140·780 ,,	4·480359 ,,	31·419
IX. Netherlands ...	Guilder	78·4 ,,	293·534 ,,	9·333485 ,,	31·449
X. Norway	Crown	52·2 ,,	195·439 ,,	6·222721 ,,	31·407
XI. Portugal *	Milreis	210·3 ,,	787·375 ,,	25·088524 ,,	31·383
XII. Spain *	Peseta	37·6 ,,	140·780 ,,	4·480359 ,,	31·419
XIII. Sweden	Crown	52·2 ,,	195·439 ,,	6·222721 ,,	31·407
XIV. Switzerland	Franc	37·6 ,,	140·780 ,,	4·480359 ,,	31·419
XV. Turkey	Piastre	8·6 ,,	32·198 ,,	1·0207958 ,,	31·542
XVI. United States, N.A.	Dollar	195·6 ,,	732·337 ,,	23·22 ,,	31·538

The currencies of countries marked * either have no standard or use as their intermediary inconvertible paper at the present time.

These two tables, amplified by the writer from the information contained in Col. IV. of the American and Col. III. of the Japanese returns, claim the studious attention of economists, statesmen, legislators, and every one who desires to know the mechanism of the interchanges of things between individual men and communities of men. Col. IV. of the American and Col. III. of the Japanese are furnished for different purposes, the first for the setting out of the gold equivalent in the States for the gold coins and moneys of account of other countries and the gold price of silver coins at the ratio of 30·518 parts of silver to 1 part of gold; the second, the values of the intermediaries of other countries, for the purpose of converting the invoices from such countries into the standard money of Japan. Particular attention is drawn to the British Indian rupee in the Japan table. It is taken at 27 per cent. premium upon the weight of silver in the

rupee, that being the value conferred upon it in international transactions by the legislative enactment of the British Indian Government. British India has no standard. Other countries have or definitely aim at having a weight of gold or a weight of silver, long since determined, as their standard, but at present have as their international intermediary inconvertible paper. This paper price of gold or silver may be at a small percentage price on the weight of the metal, or it may range from 200 to 400 per cent. or more than par. Take, for instance, the Japanese price for the present Argentine inconvertible paper at 31·407 parts of silver to 1 part of gold, say the paper premium on gold is 210 per cent. Silver for gold in the peso at this ratio in Japan would be expressed in 53·2 sens; the sum is 16·712922 (T. VII. of "Sailors' and Travellers' Guide") ÷ by ratio 31·407 = 53·2 sens. The gold being at 210 per cent. premium in the paper in Argentina, the discount equivalent to the premium must be found and deducted from 53·2 sens $\frac{210 \times 100}{310} = 67.8$ per cent. discount: 53·2 − 67·8 = 17·1 sens. In the conversion of an Argentine invoice in Japan into the money of that country, is it right to assume that the rate for the Argentine inconvertible paper would be taken at 17·1 sens for a paper peso? The American quotations being for coins, the market value of the gold or the silver would be commanded for the purpose stated in that country. There is a large number of countries both in Europe and in Central and South America in which the international intermediary consists of inconvertible paper. For such intermediaries it would appear that the manner of dealing with them should be the same as the British Indian rupee is dealt with by the Japanese, only by a percentage premium instead of discount.

CHAPTER IV.

Instruction for Teachers of Children and Sailors, &c.—Nine factors—Seven monetary and currency intermediaries—Table of weights of pure gold and pure silver in the world's thirty past and present chief moneys of account—Thirty monetary signs for one troy grain of pure metal—Thirty constants for determining ratios between the metals—Directions for ascertaining the closely approximate exchange value of all coins everywhere—Twenty concrete cases of the interchanges of five monetary and currency intermediaries—Steps in instruction.

THERE is every reason why this little island, "a nation of shopkeepers," should show the world the example of turning out its youths from the schools, at which even the poorest are instructed, with the knowledge of the mechanism of the exchanges of things, a masterly skill in bullion and coin, and a practical acquaintance with the interchanges of the seven monetary and currency intermediaries at present in use in the world. This latter branch of the subject is indispensable to the sailor, soldier, and traveller if he is determined to approach the money and currency dealer with the following assertion and question: "I know within a small percentage charge how much this which I am offering to you for exchange is worth in your money. What sum do you offer me for it?" This assertion must be backed by knowledge acquired through or expressed in grains or decigrams of pure gold and pure silver.

For the use of teachers of youth, sailors, soldiers, and travellers, this chapter will deal with the factors used in connection with prices and the foreign and colonial exchanges of the world's present intermediaries. It will also furnish concrete cases of exchanges of intermediaries in the form of coins and notes between each of the monetary or currency systems and the six other monetary and currency systems.

The factors are—

I. Mint issue weight of pure gold in the world's chief standard gold moneys of account indicated by monetary signs and by signs for the tokens for money such as a shilling, a cent, &c.

II. Mint issue weight of pure silver in the world's chief standard silver moneys of account indicated by monetary signs and by signs for the tokens for money such as a sen, a centesimo, an anna.

III. Norman's unit of weight system, described page 31.

IV. The monetary signs indicating the fixed pars of exchange between gold monetary systems, or, in other words, different monetary signs used in different countries for the same weight of pure gold; such as one sovereign in Britain indicating the same weight of pure gold as francs 25.22·15 centimes in France.

V. The monetary signs indicating the fixed pars of exchange between silver monetary systems, or, in other words, different monetary signs used in different countries for the same weight of pure silver; as one tael in Shanghae indicating the same weight of pure silver as one peso thirty-six centesimos in Mexico.

VI. Fluctuating ratios between gold and silver. How to find and use them.

VII. Fixed pars of exchange between gold and silver at the ratio of one part of gold to one part of silver. To find the par of exchange between a chief gold money of account and a chief silver money of account; the ratio of the day applied as a divisor to the fixed par gives the par of the day.

VIII. Fixed pars of exchange between silver and gold at the ratio of one part of silver to one part of gold. To find the par of exchange of the day between a chief silver money of account and chief gold money of account; the ratio of the day applied as a multiplier of the fixed par gives the par of the day.

These pars of exchange resulting from the altered ratio of the day between the two metals the writer distinguishes

from *fixed* pars by calling them *absolute* pars of exchange. An absolute par of exchange is a monetary sign indicating a weight of gold for an equivalent weight of silver at the ratio of the day. It is also a monetary sign indicating a weight of silver for an equivalent weight of gold at the ratio of the day. The limits to the fluctuation of the exchanges of intermediaries consisting of effective gold and effective silver intermediaries is what is termed *metal points.* The meaning of this is that beyond a certain rate it is cheaper to collect the standard coin or present notes at institutions where they are payable on demand and obtain in exchange either coin or bullion and to ship the metal than to purchase a bill of exchange. This bill would be in the terms of one or other of the four following systems: pure gold, pure silver, gold-cum-coinage charge, or silver-cum-coinage charge. It will be seen that there is no such limit to the fluctuation of the exchanges of silver-cum-counter charge, inconvertible paper based on gold, and inconvertible paper based on silver intermediaries.

IX. The weights by which gold and silver are sold.

X. Percentage deviations from par. This deviation from par consisting of a greater or less weight of metal or more or less of the other intermediaries, are due to coinage charges, duties, charges on the transmission of metal, and where their services are required for commission to dealers in money and currency.

The vastly important instruments used in facilitating the interchanges of things are, [a] automatic pure gold, [b] automatic pure silver, [c] gold-cum-coinage charge, [d] silver-cum-coinage charge, [e] silver-cum-counter charge, [f] incontrovertible paper based on gold, [g] incontrovertible paper based upon silver. These factors constitute the world's prices and the world's rates of exchange of these seven intermediaries.

TABLE V.

Col. I. Name of chief country using or to use the monetary system. II. Monetary signs for the world's present and prospective chief moneys of account. III. Weights of pure gold and pure silver in troy grains to the 2nd and 3rd decimal point indicated by the monetary signs in Col. II. IV. Monetary sign for one grain of pure metal. V. Constant for determining the ratio of the day between gold and silver on the market price of the day. [a] Attached denotes that the currency at present consists of inconvertible paper. [b] Attached denotes that the currency for international purposes consists of a fictitious value imparted to it by legislation. [c] Attached denotes prospective chief moneys of account. * Denotes silver monetary systems.

GOLD.

Col. I.	Col II.	Col. III.	Col. IV.	Col. V.
I. Egypt	Pound	114·778	8·7124 ochs ...	498· 33 piastres
	Piastre 100th ...	1·148		
	Ochs 1000th ...	·114		
II. British Isles ...	Pound	113·002	2·123 pence ...	934·5 pence
	Shilling 20th ...	5·65		
	Penny 240th ...	·471		
III. Turkey	Pound	102·08	39·184 paras ...	4841·62 piastres
	Piastre 100th ...	1·02		
	Para 4000th ...	·0255		
IV. Portugal [a]	Milreis	25·088	39·858 reis ...	615·116 milreis
	10 reis 100th ...	·250		
	Reis 1000th ...	·025		
V. Uruguay [a]	Peso	24·015	4·164 centesimos	642·612 pesos
	Centesimo 100th	·240		
VI. United States, N.A.	Dollar	23·22	4·306 cents ...	2067·183 cents
	Cent 100th ...	·232		
VII. Argentina [a] ...	Peso	22·402	4·464 centesimos	688·893 centesimos
	Centesimo 100th	·224		
VIII. Brazil [a]	Milreis	12·682	78·852 reis ...	1216·87 milreis
	10 reis 100th ...	·126		
	Reis 1000th ...	·0126		
IX. Russia [a]	Rouble, old ...	17·92	5·580 copecks ...	367·4056 copecks
	Rouble	11·946 [c]	8·369 ,,	551·074 ,,
	Copeck 100th ...	·119		
X. Japan [c]	Yen	11·574 [c]	8·676 sens ...	1000 yens
	Sen 100th ...	·115		
XI. Holland	Guilder	9·333	10·714 cents ...	1653·44 guilders
	Cent 100th ...	·0933		
XII. Chili [c]	Condor	8·475 [c]	11·775	1820·90 condors
	100th ...	·0847		
XIII. British India [c] ...	Rupee	7·533 [c]	2·123 annas ...	382·29 annas
	Anna 16th ...	·4708		
	4 pice 64th ...	·1177		
XIV. Scandinavia ...	Crown	6·222	16·07 ores ...	1240 crowns
	Ore 100th ...	·0622		
XV. Germany	Mark	5·531	18·079 pfennigs	1395 marks
	Pfennigs 100th ...	·0531		
XVI. Austria-Hungary [a]	Crown	4·705	21·254	1640 crowns
	100th ...	·0470		
XVII. France	Franc	4·480	22·319 centimes	3444·4444 francs
	Centime 100th ...	·0448		

SILVER.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.
I. Shanghai* ...	Tael	516·405	1·936 cash ...	1·11296 tael
	Cash 1000th ...	·516		
II. Mexico*	Peso	377·168	·2651 centesimos	40·911 pesos
	Centesimo 100th	3·771		
III. Japan	Yen	374·4	·2671 sen ...	15·456 yens
	Sen 100th ...	3·744		
IV. Java*	2½ Guilder ...	364·589	·2743 cent ...	10·417 rixdollars, or 2½ guildercoin
	Cent 100th ...	3·646		
V. Philippines* ...	Dollar	360·561	·2773 cent ...	42·8 dollars
	Cent 100th ...	3·605		
VI. Columbia, U.S.A.*	Sol	347·227	·288 cent ...	44·444 sols
	Centesimo 100th	3·472		
VII. Bolivia*	Boliviano ...	312·505	·3203 cent ...	49·382 Bolivianos
	Cent 100th ...	3·125		
VIII. Russia	Rouble	277·722	·36007 copeck ...	23·704 copecks
	Copeck 100th ...	2·777		
IX. Siam*	Tical	226·301	·1414 phainung	1·042 ticals
	Phainung 32nd	7·072		
X. Austria	Florin	171·470	·5832 kreutzer ...	45 florins
	Kreutzer 100th	1·714		
XI. British India ...	Rupee	165·	1·16367	1·0909 rupee
	Anna 16th ...	10·312		
	Pice 192nd ...	·859		
XII. Persia*	Kran	63·936	·1414 shahis ...	1·111 kran
	Shahis 20th ...	3·196		

The world's present seven currencies—These seven currencies are all based upon weights of pure gold or weights of pure silver. They are used by the inhabitants of continents and islands wherever intercolonial and international trade is practised. Two of them, gold-cum-coinage charge and silver-cum-coinage charge, operate so as to widen the margin of the fluctuations of the exchanges of the intermediaries so denominated with other of the five intermediaries and between themselves. In the case of gold intermediaries the coinage charge is so small as to have very little perceptible effect upon the exchange of such intermediaries with the other intermediaries; but in the case of silver-cum-coinage charge it sometimes operates to the extent of 2 per cent. Take the case of the late British Indian rupee, when the mints were open to the unlimited reception of silver from the public and there was a coinage charge of $2\frac{1}{5}$ per cent. Under such conditions and a demand for silver for shipment to British India in London, a sailor having five rupees to exchange should get something near 2 per cent. more than the equivalent gold for the silver

at the ratio of the day, since the buyer of the rupees would save the $2\frac{1}{5}$ mintage charge for coinage of silver into rupees. A silver-cum-counter charge currency system exists now in British India. The term counter is used to denote that by legislation the Government has conferred a fictitious value upon silver. At the present time a rupee, which is still the chief money of account in British India, and contains an issue from the mint 165 troy grains of pure silver, does the work in intercolonial and international interchanges of intermediaries of 239 grains of pure silver, or about 30 per cent. more than silver is worth in the markets of the world. In the Dutch possessions of the East, Java, &c., the intermediary the people pay for, supplied to them by Holland, is a rixdollar, or a $2\frac{1}{2}$ guilder piece, containing on issue from the mint 364·589 troy grains of pure silver. This coin has a forced circulation in Java, &c., at the ratio of 15·6 parts of silver to 1 part of gold, and does the work of about 730 troy grains of pure silver in the internal interchanges of those islands. The worst of all intermediaries is inconvertible paper, whether it be based on gold or upon silver, because of the fluctuations in its purchasing power for local purposes and as an intermediary in the foreign and colonial exchanges of intermediaries. This intermediary, whilst bearing upon the face of it a promise to pay a definite weight of gold or silver, has often so far deviated from the fulfilment of the promise that from 5 to 400 per cent. more of these promises have to be paid for the weight of metal indicated on the face of the promise. Besides this, the violent fluctuations of the value of this class of intermediary is an impediment to international and intercolonial interchanges of things, and effectually prevents such exchanges being carried out, as they should be carried out, upon the terms of barter.

The daily ratio between gold and silver.—This most important factor should occupy a prominent place in the world's daily newspapers which profess to give ordinary commercial information. It is easily obtained in each country by the application of the price of silver in gold

standard countries and the price of gold in silver standard countries to a constant attached to each present and prospective metal monetary system. As an instance of how a constant is found, take the constant for the British Isles. One of the monetary signs for a sovereign is 240 pence. The mint issue weight of a sovereign is 113·001605 troy grains of pure gold. Silver is sold in the British Isles per troy ounce, or 444 troy grains of pure silver. By treating silver as gold the constant 942·9955 is obtained. The sum is $\frac{240 \times 444}{113{\cdot}001605} = 942{\cdot}9955$ pence. The application of the gold price of silver of the day to this constant as a divisor gives the ratio of silver to 1 of gold. Say the price is $26\frac{13}{16}$ pence per ounce. On page 171 will be found a table of conversion of fractions into decimals, and against $\frac{13}{16}$ the decimal ·8125 will be found: 942·995, the constant, divided by 26·8125, gives the ratio 35·17 parts of silver to 1 of gold.

Deviations from Par of Exchange.—The deviations from metal pars of exchange are caused by legislative enactments, which confer a fictitious value upon one or other or both of the precious metals; the use of an inconvertible paper currency based either upon gold or upon silver; the use of a silver-cum-counter-charge currency; the imposition of coinage charges upon the metal forming the standard measure of value; the transmission charges upon the standard substance; interest for the use of money; and a commission for the dealer in money and currency, as remuneration for his services, should they be employed. It should be observed that the silver tokens for the standard substance used in gold standard countries, and the gold tokens used in silver standard countries, are generally saleable at rates in proportion to the weight of standard metal for which they are tokens. A shilling in France would sell as the 20th part of a pound, and not at the French gold price of silver; and the silver franc would sell in Britain as a gold franc, and not at the British price of silver.

Before conducting the reader through the practical exchanges of the seven intermediaries in such sums as sailors

and travellers would use, considerable enlightenment may be found by assuming that every empire, kingdom, republic, and island of the world used but one intermediary—say automatic pure gold; that this gold is divested of monetary signs, and that prices and rates of exchange of the one intermediary and measure of value are given in weights; that the whole world has one weight table for monetary purposes. Under such conditions the factors used in the world's prices and rates of exchange of the intermediary would be only two: I. Weight; II. Deviation from weight more or less in the shape of discount or premium for transmission of metal charges and the money and bill dealers' commission. It is clear that if this were so, the rudiments of money having been acquired by children, an intelligent knowledge of the foreign and colonial exchanges of an intermediary could be gained in one lesson. But if weights cannot be made to take the place of monetary signs, and the existing and projected chief moneys of account of the world are continued in one metal, the additional factor would be weights of the chief moneys of account, and a good deal more for children to learn; but the simplicity of the use of one metal only would be preserved.

The metric measure of weight of gold and silver is used by far the largest number of the peoples of the world—all Europe except Russia and Turkey; all South America, Mexico, and Central America. Troy weight comes next: The British Empire except British India, Ceylon, Mauritius, &c., and the United States of North America.

THE FOLLOWING ARE THE BRITISH EQUIVALENTS OF METRIC WEIGHTS IN TROY GRAINS AND BRITISH MONEY.

	Troy Grains.	British Money.
Milligram ...	·01543235639	·03277 of a penny.
Centigram ...	·1543235639	·3277 „
Decigram ...	1·543235639	3·277622 pence.
Gram	15·43235639	32·776220 „
Decagram ...	154·3235639	1·365625854 pounds (£).
Hectogram ...	1543·235639	13·65625854 „
Kilogram ...	15432·35639	136·5625854 „

In a country which possesses an effective gold monetary system in which is included a gold-cum-coinage charge

system, prices and rates of foreign and colonial exchanges and intermediaries, are gold prices and gold rates of exchange. Gold s as good as weighed out against anything bought and sold, inclusive of the intermediaries for facilitating the interchanges of things. The same in regard to silver in effective silver standard monetary systems. In a country which possesses a silver-cum-counter-charge currency, prices under certain conditions are silver prices, and rates of exchange are silver-cum-counter-charge rates for the six other descriptions of intermediaries. In countries possessing an inconvertible paper currency, whether based upon gold or upon silver, prices and rates of exchange are inconvertible paper prices and rates of exchange, and everything bought and sold is as though the currency intermediary is counted out against it, and the exchange of the intermediary for another intermediary is as good as counted out for the other intermediary.

A study of Table V. will show that of the present and projected 17 or 18 gold and 8 silver monetary systems, there are eight which have no gold weight, as well as a silver weight representing the chief money of account. These systems are: the British pound, gold; one shilling, $\frac{1}{20}$th of pound, silver. Egyptian pound, gold; 10-piastre piece, silver. Turkish pound, gold; 20-piastre piece, silver. China tael, silver. Java rixdollar, silver. Corea, silver. Siam tical, silver. Persia kran, silver; toman, gold. The other 17 or 18 systems possess both a weight of gold and a weight of silver for the chief money of account in each. A coinage charge, should such be made, is a fixed one. On gold it is not more than 1 per cent. anywhere. On silver it ranges from 1 to 2 per cent. The three classes of intermediaries in most countries are: I. The standard substance in the shape of either gold or silver coins. II. Token coins. III. State or bank notes. It will be shown how easily these exchange calculations can be made in two ways, by weights of pure metal and by reference to tables in this book. The countries furnishing examples of these five descriptions of intermediaries are: I. British Isles, automatic pure gold.

II. China, automatic pure silver. III. British India, silver-cum-counter charge. IV. Argentina, inconvertible paper based on gold. V. Columbia, S.A., inconvertible paper based on silver. Table V., containing 16 gold monetary signs for each of the 17 of the world's chief gold moneys of account, would not be required if signs were abolished and one measure of weight were used throughout the world. A sailor who tenders a sovereign for exchange in any effective gold standard country should know that a pound means 113·0016 troy grains of pure gold, and that all the monetary signs under Great Britain indicate the same proportional weight of pure gold. Thus the pound and f.25·2215c. indicate the same weight of gold. Under Britain, the British sign for one franc is 9·515 pence. Under France, the French sign for a shilling, which is a token for the 20th part of a pound, is found by dividing f.25·2215 centimes by 20, which gives f.1·26 centimes as its equivalent. It is necessary to be on one's guard about the use of a quotation of a rate of exchange, as to the effect of the use of it whether as a divisor or a multiplier. The quotation should invariably be the money of the country for the intermediary presented for sale. Thus in France it should be francs or centimes for the intermediary, say the pound or the shilling. Thus the higher the rate the better for the seller, as the rate is used as a multiplier. When the quotation of exchange in France is given in pence for a franc, the quotation must be used as a divisor of the money to be exchanged, and the higher the rate the worse it is for the seller of the intermediary. An offer is made to exchange a franc for 10*d.*: the equivalent to a franc is $9\frac{1}{2}$ pence. This is a difference of 5 per cent., and shows a very large percentage for the accommodation afforded.

The knowledge that the sailor, soldier, and traveller needs, is how to find with ease the equivalent in coins of one country in which he may happen to be, for any coins of another country which he may desire to exchange. If every part of continents and islands of the world possessed a scientific automatic gold monetary system, and had no other nomenclature but that which indicated one weight-table, the

subject of prices and rates of exchange of the one intermediary could be acquired by the poorest understanding. If the whole world's chief moneys of account were a decagram or 154·3235 troy grains of pure gold, with gold, silver, and bronze coins comprising a decagram and parts of the same, comparative prices could be understood at a glance, and the rate of exchange for the intermediary gold, with its tokens and promises to pay gold, would be a percentage more or less bounded by the cost of the conveyance of gold and the commission to the dealer in the exchanges of the intermediary. If the world had but one gold intermediary upon a scientific basis, as a measure of value and means of payment, and each country possessed different weight-tables and attached different monetary signs to different weights of gold and the metal tokens for gold, prices and rates of exchange lose all their mystery by throwing off the signs by the use of the unit of weight system described in this chapter. At present the world has two standard monetary metals, gold here and silver there, but both together at a fixed ratio to make one standard, nowhere.

In Table V. it will be noticed that weights are given for the tokens used for chief moneys of account in 17 gold and 8 silver monetary systems; these latter are marked with an *. The weight of gold, or silver in silver systems, indicated by these tokens, as well as the weights of the chief moneys of account, together with the ratio between the metals, are the means of determining the equivalent weights in monetary signs. For instance, quotations in Britain for other countries' chief moneys of account are given in pence. Take the Argentine peso; what is its equivalent in pence? In the table against Argentina 22·4 grains of gold will be found, and against one penny ·471 grain of gold will be found. The sum is $\frac{22{\cdot}4}{{\cdot}471} = 47{\cdot}57$ pence. At the present time gold is at a premium of 202 per cent., or 66·55 per cent. discount. This discount upon 47·57 is 31·65; this deducted from 47·57, leaves 15·92 pence as the present equivalent to the inconvertible paper peso of the Argentine Republic. Another

instance. What is the equivalent to a franc in British money? Against France 4·48 grains of gold is found. The sum is $\frac{4{\cdot}48}{{\cdot}471} = 9{\cdot}5$ pence. What is the U.S.A. equivalent to a franc? Against U.S.A. ·232 of a grain of gold is found; the franc is 4·48 grains of gold. The sum is $\frac{4{\cdot}48}{{\cdot}232} = 19{\cdot}3$ cents. What is the U.S.A. equivalent to a shilling? This is a token for the 20th part of a pound, and sells as such, less transmission of metal charges and commission for the dealer. Against a shilling is 5·65 grains of gold. The sum is $\frac{5{\cdot}65}{{\cdot}232} =$ 24·35 cents. What is the British monetary sign for a rupee at 40 per cent. premium on the silver rupee? Against the silver rupee is found 165 grains—the ratio between the metals 32·48. The sum is $\frac{165 + 40\% \div 32{\cdot}48}{{\cdot}471} = 15{\cdot}1$ pence. What is the British equivalent to a Columbian sol? Against Columbia 347·237 grains of silver are found. The sum is at 32·48 ratio $\frac{347{\cdot}23 \div 23{\cdot}48}{{\cdot}471} = 22{\cdot}7$ pence. At present silver is at 140 per cent. premium in Columbia: this equals 58·33 per cent. discount, and reduces the 27·7 pence to 11·54 pence per cent.

What is the Columbian equivalent for one British pound on the same terms as the last sum? It is $\frac{113 \text{ grains of gold}}{347{\cdot}23 \div 32{\cdot}48 - 58{\cdot}33\%}$ $= 25{\cdot}34$ sols.

These instances will show how very simply equivalents in one intermediary for another can be discovered. It is with this knowledge that the sailor and the traveller should approach the dealer in monetary and currency intermediaries. The dealer must have his fair commission for the risk he runs and the accommodation he affords. These risks are great with silver-cum-counter charge, inconvertible paper based on gold, and inconvertible paper based on silver intermediaries. Should the whole world ever possess one scientific automatic gold monetary system, the fluctuation in the foreign and colonial exchanges of the one intermediary

would be limited to little more than 1 per cent. between the most distant ports.

For the forty-nine different descriptions of exchanges resulting from the use of seven monetary and currency intermediaries, see page 21.

Teachers of this subject will do well to see that the students are thoroughly at home in exchanging each of the twenty-five chief moneys of account into the twenty-four other chief moneys of account, and parts of one for parts of the twenty-four other moneys of account. Upon which may succeed the further following teaching :—

We now proceed with sailors to visit five ports whereat five of the seven present monetary and currency systems exist for the purpose of exchanging in each four other intermediaries.

I. **London.**—We are now in the capital of the British Empire, where the currency is automatic pure gold. A sailor has 450 *Mexican* dollars or pesos to exchange. The ratio is 32·48. The sum is $\frac{377{\cdot}17 \div 32{\cdot}48 \times 450}{113} = £46\ 4s.\ 6d.$ The divisor is the grains of gold in the pound. The dividend is the weight of silver in grains in the peso divided by the ratio, and multiplied by the number of pesos. Check this by the use of monetary signs and tables. On Table XXIII. against Mexico and under Britain the constant 801·07 will be found ; this is pence at the ratio of 1 of silver to 1 of gold. Divide 801·07 by the ratio 32·48, and the result will be 24·66 pence. 450 pesos multiplied by 24·66 pence gives *£46 4s. 7d.* Another mode by use of monetary signs and a table. On Table XXVII. under Mexico and against Britain the constant 29·959 cash is found. Multiply this by the ratio, and the result is 9·73 pesos. 450 pesos divided by 9·73 = *£46 4s. 8d.* In future calculations we shall simply work by weight, and appeal can be made to tables to verify the same. It will be seen that the equivalent weight for weight for 450 Mexican pesos at the ratio of 32·48 parts of silver to 1 part of gold is *£46 4s. 6d.* It is with such knowledge that the sailor should approach the money and currency dealer. There is no transaction involving price or a foreign or colonial rate of

exchange that has not for its basis either a weight of pure gold or a weight of pure silver. The commission to be paid for exchanging one intermediary for another, depends upon the demand for the intermediary which is offered for exchange. It is a great accommodation to be able to effect such exchanges. And those who afford it must obtain adequate remuneration. Gold is always in demand, and exchangeable in the trading world for any other metal, or anything else. Silver as a measure of value and an equivalent in exchange, is rapidly losing the position it held until 1873 in the history of the world, and can never again be allied with gold by legislative enactment with the view of making one permanent effective metal monetary standard under any temporary ratio between the two substances. The constantly fluctuating gold price of silver most seriously affects the exchange value of automatic pure silver, silver-cum-counter charge, and inconvertible paper based upon silver intermediaries. Considerable allowance must be made for this. The dealer in monetary and currency intermediaries with regard to this class of intermediary must operate for the rise or fall in the gold price of silver. He cannot assume that the price will remain stationary. In exchanging gold for gold, the limit to the fluctuation of the exchanges between effective gold monetary systems is the cost of conveyance of gold between ports, which is something like 1 per cent. between the most distant ports; the small per cent. or per mille coinage charge where such a charge exists, and a fair remuneration for the monetary and currency exchange dealer. In the automatic silver and the two other intermediaries in which silver forms a part, between themselves and the other intermediaries there is no such limit to the fluctuations of exchange. Let it be distinctly understood that it is only between effective gold monetary systems on the one hand, and between effective silver monetary systems on the other, that the sailor or anyone exchanging intermediaries, can present an intermediary to the exchanger, and assert that the equivalent in the intermediary in this country with this which I present is so much, and the future variation can only be so

much, what are you going to charge for commission for doing the business?

In the instances which will be given, the absolute equivalent of the intermediary offered will be stated, and the manner it is arrived at will be shown. But the future gold price of silver, and a more or less percentage of inconvertible paper for metal, must be a matter of speculation, quite apart from commission for doing the business. One dealer may take one view of the future of markets, and another another view, so that to get the best rate of exchange becomes a matter of competition between money and currency dealers on the one hand, and those who employ them on the other. Returning to the British money to be obtained for 450 Mexican dollars, besides the commission to be deducted, there are the chances of the silver market to be run, unless a simultaneous sale of the dollars can be secured by the buyer of them. Though the tael weight forms the chief money of account in Shanghai, there are various tael money weights in that country. The Shanghai tael weight and the dollar are quoted in this country as the standard currency of China. Prices and rates of exchange of intermediaries are automatic pure silver.

A sailor has 426 British Indian rupees. As an intermediary in international exchanges of things, the rupee does 40 per cent. more work than its weight of 165 troy grains of pure silver. For 300 rupees the sailor has Indian State notes of the Bombay circle, and the remainder in coins of a rupee each. The equivalent in London for the notes, the ratio being 32·48, is thus found $\frac{300 \times 165 + 40\% \div 32{\cdot}48}{113} =$ £18 17*s.* 8*d.* British India imposes a duty of 5 per cent. on the importation of silver. This is the sum to find equivalent for 126 rupees; $\frac{126 \times 165 + 40\% \div 32{\cdot}48}{113 + 5\%} =$ £7 11*s.* A commission for effecting the exchange has to be deducted. By the closure of the British Indian Mints against the reception of silver from the public in June, 1893, the standard silver monetary system was destroyed. Prices in the country

are still silver prices, and the notes of the British Indian currency circles are as yet convertible into silver at the will of the holder of them. As an international intermediary the rupee is a silver-cum-counter charge intermediary.

A sailor has 325 Argentine pesos in inconvertible State or other equally good credit paper. To find the equivalent to sterling the sum is: since the premium in paper for gold is 202%, equal to 66·55% discount, thus $\frac{202 \times 100}{302} = 66{\cdot}55\% - \frac{325 \times 22{\cdot}4 - 66{\cdot}55\%}{113} = £21\ 18s.\ 7d.$ Besides commission, there is the risk that the premium on the 22·4 grains of gold in the peso would be more when the credit instrument should be returned to Argentina.

A sailor has 475 Columbian sols in State notes or other equally good credit instrument. The silver money of account is 347·23 troy grains of pure silver, which is at a premium of 140 per cent. What is the equivalent for 475 sols? The sum is $\frac{347{\cdot}23 - 58{\cdot}33\% \div 32{\cdot}48 \times 475}{113} = £18\ 14s.\ 5d.$ The risk of disposing of the paper and the commission for the accommodation must be deducted.

II. **Calcutta.**—We are now in the capital of British India, where there is no standard. Silver rupees are current, and notes of the British India currency circles are convertible at the will of the holder into rupees within these circles. It is nearly four years since a gold standard for British India was projected. The fictitious value of the silver rupee may go much higher before the object can be accomplished. By each rise an additional handicap is imposed on such portions of the export trade as countries possessed of effective silver currencies can compete with in supplying effective gold standard countries. A sailor has *British* money £42 10*s.* to exchange. £30 are in Bank of England notes or some other credit instrument equally secure of payment in England; the rest in gold, and 10*s.* in silver. What is the equivalent for this? The 165 grains of silver in the rupee do the work as an intermediary of 40 per cent. more or 231

grains of silver. The sum is $\frac{42 \times 113}{231 \div 32{\cdot}48} = 667{\cdot}50$ rupees. As a remittance to England the credit instrument mentioned should be worth more than the gold, because transmission charges on the metal would be saved. To find the equivalent to 10*s.*, it will be noticed in making the last sum that the 231 grains of silver are equivalent to 7·11 grains of gold. There is an import duty of 5 per cent. on silver in British India. Ten shillings is the monetary sign for 56·5 troy grains of gold. The sum therefore is $\frac{56{\cdot}5}{7{\cdot}11 + 5\%} = 7{\cdot}9$ rupees. Commission for accommodation must be deducted.

A sailor from China has 785 Mexican dollars of 377·17 grains of silver each, the same premium on the rupee: the sum to find the equivalent is $\frac{785 \times 377{\cdot}17}{231 + 5\%} = 1281{\cdot}7$ rupees. Commission for making the exchange must be deducted.

A sailor has 260 Argentine paper pesos to exchange at the same premium upon the peso and the rupee. What is the equivalent? The sum is $\frac{22{\cdot}4 - 66{\cdot}55\% \times 32{\cdot}48 \times 260}{165 + 40\%} =$ 274 rupees. If the pesos were gold, then the sum would be $\frac{260 \times 22{\cdot}4 \times 32{\cdot}48}{165 + 40\%} =$ 821·92 rupees. A commission for accommodation must be deducted.

A sailor has State bank notes or equally good credit paper for 385 Columbian sols: the sol contains 347·23 grains of pure silver, and its price in inconvertible paper is 140 per cent. more. Take the same premium on the rupee. What is the equivalent in rupees? The sum is $\frac{347{\cdot}23 - 58{\cdot}33\% \times 385}{165 + 40\%} = 240{\cdot}71$ sols. 140% premium equals 58·33% sols discount.

III. **Shanghai.**—We are now in one of the chief ports of China. The money of account is a tael weight of 516·4 grains of pure silver. The monetary sign is what it should be for the whole world. *Weight:* China in this respect has followed the Abrahamic principle, and the people have never had to

muddle their brains with a sign for the thing signified. The currency is automatic silver. Prices on the seaboard and the rates of exchange of intermediaries are automatic silver.

A sailor has British £36 2*s.* 6*d.*; what is the equivalent in Shanghai money at a ratio of 32·48? The sum is $\frac{36{\cdot}125 \times 113}{516{\cdot}4 \div 32{\cdot}48} = 256{\cdot}670$ taels. A commission for the accommodation must be deducted. The silver coins of the East are current exchange intermediaries throughout the East, the weights of which are to be learned in Table V. of this chapter. The British dollar is of the same weight as the Japanese silver yen, 374·4 troy grains of pure silver. The scientific, and therefore the proper quotation is always the intermediary of the country for the intermediary presented for exchange: You will notice that in Russia it is roubles for a pound sterling, or for £10 sterling. In London the quotation is always pence for a rouble. The quotation in Shanghai, between that port and London, would be pence for the tael. To find the answer for this quotation the sum presented for exchange must be reduced to pence, and the quoted rate used as a divisor of the amount to give the answer in taels: used in this manner, the higher the rate, the worse for the party presenting the sterling for exchange. Paper promises to pay standard metal in the shape of standard coins vary in quality. State notes of a country possessing good credit and an effective metal monetary system command a better price than the metal for which it is only an engagement to pay, because the paper can be transmitted at a less cost than the metal can be sent for. Besides State and bank notes, there are many kinds of credit instruments, among them seamen's pay notes, which do not equal in quality State and bank notes, though as a rule they do the work equally well, even as the gold or silver promised on the face of them. All these instruments are most valuable and efficacious, and without them the world's business could not be carried out upon the present scale of it. At the same time the rate of exchange must mainly

depend upon the quality of the intermediary presented for exchange or sale.

One of the sailors has 867 *British Indian* rupees. The 165 grains of silver in the rupee has had conferred upon it by legislative enactment a sliding scale percentage addition of purchasing power. Just now it is 40 per cent. In other words, that which in the world at large does the work of 165 grains of silver, does the work of 231 grains of silver as a British Indian currency intermediary. There is a charge of 5 per cent. on imported silver at all the British Indian ports. Under these conditions, what is the equivalent to 867 rupees in British Indian State notes? The sum is $\frac{231 \times 867}{516{\cdot}4} = 387{\cdot}83$ taels. Should this sum be in coins of a rupee each, then besides shipping charges to India, and the 5 per cent. import charge, there would be commission as for exchange of notes to be deducted. These deductions for coin might be something like 7 per cent. This on 387·83 leaves taels 360·83. A better price of the rupees for use in China might be commanded.

A sailor has State paper for 180 Argentine pesos, each of 22·4 troy grains of pure gold: each peso is at 202 per cent. premium in the present inconvertible paper of the Argentine Republic. What is the equivalent for this amount of paper pesos at the ratio of 32·48?—the equivalent discount to 202 per cent. premium being 66·55. The sum is $\frac{22{\cdot}4 - 66{\cdot}55 \times 180}{516{\cdot}4 \div 32{\cdot}48} = 84{\cdot}16$ taels. Were they gold pesos the sum would be $\frac{22{\cdot}4 \times 180}{516{\cdot}4 \div 32{\cdot}48} = 253{\cdot}53$ taels. Commission for the accommodation must be deducted. Prices and rates of exchange of intermediaries in this system are inconvertible paper prices based on gold.

A sailor has State notes or equally good credit instrument in the shape of bank notes or seamen's pay notes for 350 *Columbian* sols: the sol consists of 347·23 grains of pure silver, and at present this weight of silver commands a premium of 140 per cent., which is equal to a discount of

58·33 per cent. What is the equivalent in taels? The sum is $\frac{347{\cdot}23 - 58{\cdot}33\% \times 350}{516{\cdot}4} = 98{\cdot}07$ taels. If the sol had to be exchanged, the sum is $\frac{347{\cdot}23 \times 350}{516{\cdot}4} = 237{\cdot}28$ taels. A commission must be deducted.

IV. **Buenos Ayres.**—We are now in the capital of the Argentine Republic, where the chief money of account is a gold peso containing 22·4 troy grains of pure gold. At present the currency is inconvertible paper, 302 paper pesos having to be paid for 100 gold pesos. This 202 per cent. premium is equal to 66·55 discount; the ratio between the metals is 32·48. Prices and the rates of exchange of intermediaries are inconvertible paper prices and rates of exchange, based on gold.

A sailor has *British* money for £33, £20 in pay notes and £13 in gold. What is the equivalent in Argentine inconvertible notes? The sum is $\frac{33 \times 113}{22{\cdot}4 - 66{\cdot}55\%} = 497{\cdot}86$ pesos. Gold is most likely to command the best rate for the seller. Credit instruments which are nearly as good as a Bank of England note, should differ by a small percentage only against the seller. Commission charge must be allowed for in the estimate. But the equivalent for the day, upon the terms given in the currency of Argentina for British gold £33, is 497·86 pesos.

A sailor has 685 *British Indian* rupees: the rupee is at 40 per cent. premium, and the peso is at 66·55 per cent. discount; the ratio between the metals 32·48; what is the equivalent in pesos? The sum is $\frac{685 + 40\% \times 165}{22{\cdot}4 - 66{\cdot}55 \times 32{\cdot}48} = 650{\cdot}04$ pesos. If there is no sale of the rupees at the ratio of the day, and the best thing to be done with them is to ship them to British India, there would be the Indian duty of 5 per cent. upon them and a charge for conveyance, besides commission for the accommodation. A good credit instrument is better than silver.

A sailor hailing from *China* has 356 Mexican dollars or

pesos, of 377·17 troy grains of silver each : discount on the Argentine peso equal to 202 per cent. premium is 66·55 per cent. What is the equivalent in pesos ? The sum is $\frac{356 \times 377{\cdot}17}{22{\cdot}4 - 66{\cdot}55 \times 32{\cdot}48} = 551{\cdot}90$ pesos. If the best use to be made of the dollars is either shipment to the East or to Mexico, transmission charges must be deducted besides commission on the sale.

A sailor has *Columbian* State notes for 426 sols : the sol is 347·23 troy grains of pure silver, which is at 140 per cent. premium in inconvertible paper, the ratio and the discount on the peso as in the last sum. What is the equivalent in pesos ? 140 per cent. premium is equal to 58·33 per cent. discount. The sum is $\frac{426 - 58{\cdot}33 \times 347{\cdot}23}{22{\cdot}4 - 66{\cdot}55 \times 32{\cdot}48} = 294{\cdot}50$ pesos. There should not be a great difference between the sale of the metal and a first-class credit instrument.

V. **Cartagena.**—We now proceed to the chief part of the United States of Columbia, where we find the standard currency is silver. The chief money of account, the sol, contains on issue from the mint five times the weight of the silver franc, 347·23 troy grains of pure silver. At present it requires 240 paper sols to procure 100 silver. Prices and rates of exchange of intermediaries are therefore inconvertible paper prices based upon silver. A sailor has *British* money £25. The ratio between the metals being 32·48, what is the equivalent in Columbian currency to £25 ? The sum is $\frac{25 \times 113}{347{\cdot}23 - 58{\cdot}33\,\% \div 32{\cdot}48} = 634{\cdot}26$ sols : ans. The difference would not be great between the amount to be obtained for gold and a first-class credit instrument. Allowance for commission must be made.

A sailor has 280 Mexican dollars. The discount on the local inconvertible paper is 58·33 %. What is the equivalent in exchange ? The sum is $\frac{377{\cdot}17 \times 280}{347{\cdot}23 - 58{\cdot}33\%} = 730$ sols.

Assume that there is a mint charge for coinage and delay in getting Columbian stamp changed for the Mexican stamp

on the silver, together 1 and $\frac{1}{2}$ per cent., this sum must be deducted from the 730 sols. Allowance must be made for commission in either case.

A sailor has 435 *British Indian* rupees, which as an intermediary possess a fictitious value of 40 per cent. more than the equivalent in exchange with an effective silver standard intermediary. The local inconvertible paper currency is at a discount of 58·33%. What is the equivalent in exchange for 435 rupees? The sum is $\frac{165 + 40\% \times 435}{347{\cdot}23 - 58{\cdot}33\%} = 694{\cdot}49$ sols. These rupees at such a high cost could not be taken for coinage anywhere, and would be of no use at anything like the price paid in British India only. Sent thither, they would incur transmission charges and the import duty of 5 per cent. British Indian silver rupees are among the worst intermediaries in the world, and must be avoided by every traveller, even as they would avoid, where possible, all inconvertible paper. British Indian State notes would be readily saleable in many parts of the East and in Europe, and would be a better instrument for sale than rupees for the same amount.

A sailor has 456 Argentine pesos in inconvertible paper: the premium on the gold peso of 22·4 grains is 202 per cent., equal to 66·55 per cent. discount; the ratio between the metals is 32·48; the premium in inconvertible paper upon the weight of the sol is 140 per cent., or 58·33 per cent. discount. What is the Columbian currency equivalent to 456 pesos? The sum is $\frac{22{\cdot}4 - 66{\cdot}55\% \times 456}{347{\cdot}23 - 58{\cdot}33\% \div 32{\cdot}48} = 676{\cdot}27$ sols. In estimating the rate to be obtained, there is the risk of the change of discount for the buyer to consider, and the commission to be paid.

Purchase and sale of things in combination with the exchange of intermediaries.—It should be no difficult matter to one who is accustomed to instruct children to practice them in the interchanges of things between countries using the five great diverse intermediaries, namely, pure gold, pure silver, silver-cum-counter charge, inconvertible paper based on gold, and

inconvertible paper based on silver. For instance, as one method, get five bags made, one labelled British Isles, in this place a miniature bale of piece goods and counters to represent grains of gold. Another bag labelled China, in this place a miniature hank of silk and counters to represent grains of silver. Another labelled British India, in this place a miniature chest of tea and pieces of paper representing rupees. Another bag labelled Argentine Republic, with a miniature bag of wheat and paper to represent pesos based upon gold. Another bag labelled Columbia, with a miniature bag of coffee and paper, to represent sols based on silver. Taking from the commercial intelligence in the daily papers the ratios of the day existing between the five intermediaries used in these countries, and applying them to the purchase in one country and sale in another of small quantities of the five descriptions of goods mentioned, the combined working of prices and rates of exchange of the five intermediaries could be taught, and should be mastered by youths before they go out into the world.

The teacher will make himself master of Chapter VI. on the scientific method of working the foreign and colonial exchanges of the world's present seven intermediaries. We will suppose that the teacher is thoroughly practised in all that this book is intended to impart. Doubtless each will have a method of teaching the mechanism of the interchanges of things, prices and the monetary and currency exchanges of intermediaries. Perhaps the writer may be permitted to indicate the steps that he thinks it may be found expedient to take. I. Tear away monetary signs and expose the things signified. These things are simply either a weight of gold or a weight of silver as the basis of each of the seven intermediaries. This has been well done by Miss E. C. Sharland in her "Coin of the realm, what is it?" and children have demonstrated that they can understand and practise it. II. Assume that the whole world has only one substance as its measure of value and ultimate means of payment, also that the whole world has only one measure of weight, say the metric. Prices throughout the whole world

would be a more or less metric weight of gold. A rate of exchange would be a more or less metric weight of gold and the fluctuation limited to 1 per cent. on the weight exchanged. International prices for the same classes and qualities of things would be seen and measured at a glance. International and intercolonial exchanges of one intermediary would be as easy of comparison. The mind readily perceives that should this great desideratum ever be accomplished, the imputed mysteries about money, prices, and the foreign and colonial exchanges of intermediaries will have vanished like fog before a strong wind. III. The next step in instruction is to show that there is no mystery about these three things, although the world has seven monetary and currency intermediaries entailing seven different descriptions of prices, and forty-nine different descriptions of exchanges of the seven intermediaries. Pupils must become familiar with the mode of dealing with each intermediary theoretically and practically. The science of and practice with money may possibly in the distant future centre in and around metric weights of pure gold. At present it centres in 25 different weights of pure gold and pure silver, each clothed with confusing monetary signs, and five of the seven intermediaries associated with and smothered by coinage charges, counters or inconvertible paper, the creation of legislation.

Weights.—As some of the weights in the next chapter are not quite correct, it should be studied for its principles and methods. The weights in decigrams on page 7 are the bases of all the tables at the end of the book. Table I, page 26, contains the weights of nearly all the chief moneys of account in troy grains.

CHAPTER V.

Description of foreign and colonial rates of exchange—Fixed pars of exchange—Gold—Silver—Gold for silver—Silver for gold—Daily gold price of silver and silver price of gold—Fixed and absolute pars of exchange—Cambists—The fixed par of exchange between the British Isles and France by chain rule—Deviations from par—Six causes of—Concrete cases—Gold for gold—London exchange on Paris—London shipping gold—Eight modes of working the exchange—Sterling into dollars—French exchange on shipment of gold to the British Isles—British exchange on receipt of gold from France—French exchange on receipt of gold from the British Isles. Silver for silver—Exchange between Persia and Shanghae: three methods—Exchange between Shanghae and Persia: four methods—Gold for silver—Exchange between Shanghae and the British Isles: three modes of reaching it—Silver for gold—Exchange between France and India: three modes of reaching it—Weights of money the corrective of Adam Smith's highway in the air—Exchange tables—Inconvertible paper currency—Effect of use of inconvertible note currency upon current interchanges of substances and services—Importance of a stable measure of value for deferred obligations—The vast difference between a monetary system and a currency system.

Fixed Pars of Exchange.—Fixed pars of exchange are different signs in the various gold monetary systems for the same weight of pure gold in the chief money of account of one monetary system at mint-issue weight. The same of fixed silver pars of exchange.

Gold.—Thus 113·001605 grains of pure gold are signified in the monetary terms of the British Isles as a sovereign; in France by 25 fr. 22·15 c.; in Germany by 20 mks. 42·96 pf.; in the United States of North America by $4. 86·66 cents, and so on. Because this weight of gold in the British Isles being multiplied by 2·123863*d.*, the sign for one troy grain gives 240*d.*, into which the sovereign is divided. In France the same weight, being multiplied by 22·31964 c., gives 25 fr. 22·15 c. In Germany the same weight, being multiplied by

18·07893 pf., gives 20 mks. 42·96 pf. In the United States the same weight, being multiplied by 4·306632, gives $4. 86·66 cents. The same results can be reached by the division of the pure gold in one chief money of account by the pure gold in another chief money of account. Thus, the division of 113·001605 grains of pure gold in £1 by 4·480359 grains of pure gold in a franc gives 25 fr. 22·15 c. This number 25 fr. 22·15 c. is plainly the number of francs which make £1. The same weight divided by 5·531307 gives 20·4266. This is plainly 20·4266 mks. The same weight divided by 23·22 gives 4·8666. This is plainly $4·8666 of the United States. These are the fixed pars of exchange between the countries mentioned and the British Isles. For finding the fixed pars of exchange between the British Isles and the countries mentioned, the weight of pure gold in their chief moneys of account must be divided by the weight of pure gold in the sovereign, and the result will be: pars with France, ·039648 of a sovereign, or 9·516*d.* per franc; with Germany, ·048948 of a sovereign, or 11·747*d.* per mark; with the United States, North America, ·205484 of a sovereign, or 49·314*d.* per dollar.

Silver—Thus 165 grains of pure silver are signified in the monetary term of India as a rupee. The same weight in Shanghae as 321·6 cash; in Hongkong as 43·78 cents; in Japan as 44·07 sens. These are the Shanghae, Hongkong, and Japan pars with India. The Indian par with these countries is found by dividing the weight of pure silver in the chief moneys of account in these countries by the weight of pure silver in the rupee. The result is: pars with Shanghae, 49·750 a.; with Hongkong, 36·563 a.; with Japan, 36·304 a.

ABSOLUTE PARS OF EXCHANGE.

We have seen how very simple it is to ascertain the fixed pars of exchange on the mint-issue weight of the chief gold moneys of the world between the gold monetary systems of the world, and between the silver monetary systems of the world on the mint-issue weight of pure silver in the silver-standard systems. The mode of ascertaining absolute pars

of exchange, or the equivalent value of gold to silver or silver to gold, upon the gold price of silver in gold-standard countries, and the silver price of gold in silver-standard countries, is equally simple by the use of an intermediary in the form of the ratio. As fixed pars are determined by the division of the weight of pure gold by pure gold in the chief gold moneys of account, and by the division of the weight of pure silver by pure silver in the chief silver moneys of account, the ratio has but to determine the equivalent weight of gold to silver, and it follows that it is only necessary to convert the silver in a silver money of account into gold at the ratio, or to convert the gold into silver at the ratio, and proceed as between moneys of account of the same standard metal. For obtaining the equivalent value or weight of the two metals at a given ratio, the silver would be converted into gold to save the number of figures which the conversion of gold into silver would entail.

Gold for Silver.—Say that the price of silver in the British Isles is $38\frac{5}{8}d.$ per standard ounce, or 444 troy grains. This price, by the unit-of-weight system, or by the division of the constant 942·9955 attached to the British monetary system by the price, gives a ratio of 24·414. With this ratio, to ascertain the absolute par of exchange between the British Isles and India, divide 165 troy grains, the weight of pure silver in a rupee, by 24·414; the result is 6·758, and this is the weight of pure gold in grains equivalent to 165 grains of silver. This weight, 6·758 troy grains of pure gold, divided by 113·0016, the grains of pure gold in the sovereign, gives ·059804 of a sovereign, or 14·353*d.* for a rupee.

Silver for Gold.—Say that the price of gold in India is ₹26. 10 a. 1 p. for one tola, or 180 troy grains of pure gold. This price, by the unit-of-weight system, or by the division of the price by the constant 1·0909 attached to the Indian monetary system, gives a ratio of 24·414. With this ratio, to ascertain the absolute par of exchange between India and the British Isles, divide 165 grains of silver by the ratio, and 6·758 grains of gold are found to be of equivalent value with 165 grains of silver. 113·0016 grains of gold in the sovereign, being divided by 6·758 grains of gold, give 16·7202; and

this is 16·7202, or ₹16 11 a. 6 p. for a sovereign. The rate for £1 in India can be reached by the multiplication of a constant by the ratio between the metals. Under the head of absolute pars in the Indian monetary system, the constant 10·9577 is found against the British sovereign; 10·9577, multiplied by the ratio 24·414, gives 267·506 a., or ₹16. 11 a. 6 p. for a sovereign.

Daily Gold Price of Silver and Silver Price of Gold.—The names of 161 countries and islands of the world which use or should use either gold or silver monetary systems are given in this book. The writer does not know in how many of these countries, &c., there are daily quotations of prices of the metal which is not the standard in the standard metal of the country. Few countries possess effective monetary systems. It is only where effective monetary systems are possessed that such quotations could be made. The gold price of silver in London and New York is wired to the ends of the earth daily. The ratio between the metals established by the price should be added to the price. It may reasonably be expected that in the course of time the gold price of silver and the silver price of gold, with the ratio added, will be quoted by all daily papers throughout the world. It would furnish an important guide to the exchange value of all standard and token coins of both gold and silver when sailors, soldiers, and travellers have learned how to use the instruction which such information would convey.

Fixed and Absolute Pars.—Different methods for ascertaining fixed and absolute pars of exchange of gold for gold or for silver, silver for silver or for gold, have now been set forth. Without weights in definite quantities of one or both of the standard substances, there could not be fixed pars or absolute pars of exchange. This will be clearly seen when exchanges based upon inconvertible paper are considered.

Cambists.—Cambists are experts in the foreign and colonial exchanges Books written by them, such as "Tate's Cambist," in English, and "Arbitrages et Parites," in French, by Ottomar Haupt, are also called Cambists. These works are valuable, and deal with a much wider range of subjects than it is the

purpose that this book should treat of. The arithmetical calculations to reach conclusions are effected in these books by means of the chain rule.

DEVIATIONS FROM PAR.

Premium and Discount on Par.—A rate of exchange between two countries is hardly ever at either a fixed or an absolute par. The deviation therefrom, in the form of per cent. or per mille, is either taken upon the total amount exchanged, or worked into the rate for one chief money of account. Between the British Isles and Australasia, the British Isles and a number of her colonies, France and Belgium, the U.S.A. and Liberia, India and Mauritius, the deviation from par is taken upon the total amount exchanged by so much per cent. or per mille upon the total. The reason for this is, because between these respective countries a money of account of the same weight of pure gold or silver is used. The exchanges between the rest of the world are made up of the fixed or absolute par for one chief money of account, and the deviation from par worked into the rate, making the rate per chief money of account more or less by so much per cent. or per mille. Pars of exchange depending as they do upon definite weights of pure metal, either gold or silver, they are as tightly fixed between the British Isles and France as between France and Belgium.

Causes of Deviation from Par.—I. Purchase and transmission charges upon standard metal. II. Coinage charges. III. Use of money. IV. Exchange dealers' profit. V. Difference of credit enjoyed by parties to a bill of exchange. VI. Less than legal weight of standard coin for circulation.

I. Purchase and Transmission Charges, and II. Coinage Charges upon Standard Metal.—These are charges within what are called metal points. They are the charges which have to be met by any one transmitting standard metal for use in another country. Such charges add to the rate or weight of metal to be paid in the country making the shipment to the extent of the amount paid in that country, and also as a premium on the

rate to the extent of the charges upon the standard substance in the country to which it is sent. Thus if the standard substance of India, silver, is being sent from the British Isles to Calcutta, the rate of exchange for a rupee would include the London charges, i.e. commission on purchase of silver, packing, cartage, shipping and freight charges, cartage charges in India, and $2\frac{1}{10}$ per cent. coinage charge, in all about 3 per cent. on absolute par.

Under each monetary system the coinage charges are given, so far as the writer knows them. Transmission of metal charges have a tendency to vary from $\frac{1}{8}$ to 1 per cent. between near and the most distant ports of the world.

III. Interest for Use of Money.—Bills of exchange are drawn at sight, or made payable at periods after sight. The rate for a first-class bill at sight would be about equivalent to or rather more than the equivalent cost of the transmission of metal; but if a bill has a period to run beyond sight, the seller of the bill would receive less for the bill as the charge for interest for the time the bill has to run beyond a bill at sight.

IV. Exchange Dealers' Profit.—Financiers, exchange bankers, bullion coin and exchange dealers are important members of the financial and commercial systems of the world. Eminent financiers in combination have enormous power in monetary matters and in moving standard substances, gold and silver, about the world, wherever these substances may be required, upon the best terms of profit that can be arranged.

V. Difference of Credit enjoyed by Parties to a Bill of Exchange.—"Gilt-edged paper" is a common term for bills of exchange bearing the signature of institutions, firms, or individuals of the highest credit. There are degrees of credit, and the lowest is that which attaches to a bill of exchange of which there are grave doubts of its being paid when due. The rate of exchange is adjusted to the state of the credit of the parties to a bill of exchange. On many bills of exchange there are several signatures. Each party signing—which is called endorsing—a bill of exchange is liable for the payment of the bill at the due date.

VI. Less than Legal Weight of Standard Coin for Circulation.—Some Governments appoint by law that when standard coins have lost a certain weight they are no longer legal tender. In the British Isles, a sovereign which contains less than 112·2921 grains of pure gold is not legal tender. These six causes of deviation from pars of exchange are known to those working the exchanges, and can be applied to the fixed or absolute pars of exchange in the form of premium or discount as required.

Gold is being shipped by the British Isles to France. What will be the rate of exchange on France for a bill at sight? There is absolutely only one way of reaching the answer. It must be a weight of pure gold in the British Isles for a weight of pure gold in France. Though the answer may be got by the use of monetary signs, it is better to take the weight which is signified by the monetary signs. The mint-issue weight of the pure gold in a sovereign is 113·001605 troy grains, and in a franc it is 4·480359 troy grains. Say that the transmission and coinage charges on gold from London to Paris is 0·595 of 1 per cent.

What is the cost in London of a bill at sight on Paris for 58,432 fr. 56 c. with 0·595 of 1 per cent. added?

1. An absolutely correct way of answering this question is by weight. Multiply 58,432·56 by the pure gold in a franc, 4·480359, and divide the result by the pure gold in a pound, 113·001605 grains. To this result add 0·595 of 1 per cent., which gives the answer. $\frac{4{\cdot}480359}{113{\cdot}001605}$ of 58,432 fr. 56 c.= £2316·7710. 0·595 of 1 per cent. on this sum is £13·7847: these together are £2330·5557, or £2330 11*s.* 1·36*d.* As multiples of decigrams equivalent to 4·480359 and 113·001605 troy grains are presented in the book, the calculation by this method is facilitated. The deviation from fixed par here is 0·595 of 1 per cent. on the weight of metal expressed in the monetary signs of France as 58,432 fr. 56 c., and in the monetary signs of the British Isles as £2316·7710. The exchange being at that premium, the weight paid for the bill in the British Isles is 0·595 of 1 per cent. more than will be received in France.

2. Another mode, though not the scientific one, is to take the sign for the fixed par between France and the British Isles, viz. 25 fr. 22·15 c., and divide 58,432 fr. 56 c. by it. The result is £2316·7757. 0·595 of 1 per cent. added to this, brings the equivalent of £2330·5605, or £2330 11*s.* 2·52*d.* to 58,432 fr. 56 c. at 0·595 of 1 per cent. premium on fixed par.

None of these methods are used in practice. Tables of exchange are, or should be, made up in fractions of a penny for the British monetary system, and fractions of a centime for the French monetary system. The nearest fraction in use to 0·515 of a penny in the British Isles is 0·5, or ½*d.* The nearest fraction in use in France to 0·15 of a centime is ¼, or 0·25 of a centime.

3. Take this sum at the nearest rates which can be expressed within the present customs of the trade. British par with France, 9·5*d.* for 1 fr. 58,432 fr. 56 c. at 9·5*d.* = 555,109·320*d.* 0·595 of 1 per cent. on this sum 3302·9004*d.*; together, 558,412·2204*d.*, or £2326 14*s.* 4*d.*

4. French par with the British Isles, 25 fr. 22·25 c. for one pound. 58,432 fr. 56 c. divided by 25 fr. 22·25 c. gives £2316·6839. 0·595 of 1 per cent. on this is £13·7842; together, £2330 9*s.* 4*d.*

5. Assume that quotations in the British Isles become the 64th part of one penny, then the fixed par by weight could be nearly expressed, since $9\frac{33}{64}d.$ would be 9·515625*d.* 58,432 fr. 56 c. at 9·515625*d.* for a franc gives 556,022·3287*d.* 0·595 of 1 per cent. upon this is 3308·3326*d.*; together, 559,330·0661*d.*, or £2330 10*s.* 10·66*d.*

6. In France $\frac{5}{3\frac{1}{2}}$ of a centime would give the nearest expression to 0·15 of a centime, the decimal for that being 0·15625. Take the exchange of 58,432 fr. 56 c. at 25 fr. 22·15625 c. for £1 = £2316·77. 0·595 of 1 per cent. on this, £13·7847; together, £2330 11*s.* 1·12*d.*

7. The actual British monetary sign on the par weight of pure gold in a franc being extended to the fifth decimal place, viz. 9·51569*d.*, gives 556,026·1794*d.* as the equivalent for 58,432 fr. 56 c. 0·595 of 1 per cent. on this is 3·308·3557*d.*;

together, 559,334·5351*d.*, or £2330 11*s.* 2*d.*, as the answer to the sum. It has been seen that this sum of 58,432 fr. 56 c., worked by weights with a premium for charges, yields £2330 11*s.* 1·36*d.*

8. Multiplied by ·03964831 the decimal of a pound equivalent to a franc, the result is £2330 11*s.* 1·36*d.* Multiplied by the British fixed sign for 1 fr., viz. 9·51569*d.*, the result is £2330 11*s.* 2*d.* Multiplied by $9\frac{3}{64}d.$, or 9·515625*d.*, the result is £2330 10*s.* 10·66*d.* Divided by the French fixed sign for £1, viz. 25 fr. 22·15 c., the result is £2330 11*s.* 2·52*d.* Divided by 25 fr. $22\frac{5}{32}$ c., or 25 fr. 22·15625 c., the result is £2330 11*s.* 1·12*d.*

France buys gold at its mints at one full-weight franc, 4·4803 troy grains of pure gold for 4·49005 troy grains of pure gold, or a charge of 2·2 per mille.

Say the expense of transmission of gold is $\frac{3}{8}$ per cent. The charges of $\frac{3}{8}$ per cent. and 2·2 per mille, equal to 0·595 per cent. upon 25 fr. 22·15 c., are equal to 14·75 c., which, deducted from 25 fr. 22·15 c., equals 25 fr. 07·40 c.

This charge of 14·75 c. the shipper of bullion would have to pay.

If he could get a good bill upon France at sight at this cost, it would be better for him than to ship the gold.

This premium of 0·595 per cent., or 14·75 c. on 25 fr. 22·15 c., the seller of the bill in the British Isles would get.

The exchange would be quoted at 25 fr. 7·40 c. for £1, meaning thereby £1 for 25 fr. 7·40 c.

Suppose the seller draws a bill upon France for 1000 fr.; the 1000 fr. would be divided by 25 fr. 7·40 c., and this will give a greater weight of gold to be paid for the bill here than the drawee of the bill would have to pay in France, by the weight of gold which is indicated by 14·75 c. for each sovereign and part of a sovereign.

What is the fixed equivalent in gold dollars of the U.S.A. for £12,864 8*s.* 8*d.*?

1. The sum is $\frac{113{\cdot}001605}{23{\cdot}22}$ of £12,864·43333. Answer, $62606·056 cents.

2. Another mode. In the British monetary system attached to the U.S.A. dollar, the fixed par will be found by $4·8666: £12,864·43333 multiplied by 4·8666 gives $62606·051. In January, April, July, and October of each year, the mint authorities of the United States give the United States gold value of the chief gold standard (and otherwise) moneys of account of twenty-four countries. Also at the ruling market ratio between the two metals, gold and silver, the gold prices for the chief silver moneys of account of thirteen countries. This is valuable information, which it would be well if other mints of the world would furnish. It would be best that prominence should be given in each return to the ratio of the period. The sovereign of the British Isles is taken at $4.86·6½ cents. in this valuation. The conversion of £12,864·43333 into dollars at this rate gives $62,604·7648.

French Exchange on Shipment of Gold to the British Isles.—1. Gold is being shipped by France to the British Isles. What will be the rate of exchange in France upon the British Isles for a bill at sight for £2330 11*s.* 1·36*d.*, the transmission and coinage charges amounting to 0·535 of 1 per cent. Answer by weight. $\frac{113·001605}{4·480359}$ of £2330 11*s.* 1·36*d.* = 58,780·2229 fr. 0·535 of 1 per cent. on this is 314·4741 fr.; together, 59,094·6970 fr.

2. By the French fixed sign for £1, viz. 25 fr. 22·15 c., £2330 11*s.* 1·36*d.* × 25·2215 = 58780·1030 fr. 0·535 of 1 per cent. on this, 314·4735 fr.; together, 59094·5765 fr. It is needless to repeat the various modes of reaching an answer to this sum.

British Exchange on Receipt of Gold from France.—When gold is being received in the British Isles from France, to ascertain the par rate in the British Isles for a bill at sight on France, the following formula is used, with the deduction of 0·535 of 1 per cent. instead of the addition of 0·595 of 1 per cent. The result will be the equivalent weight yielded by the importation of gold.

Say the sum is 58,780·2229 fr., then $\frac{4{\cdot}480359}{113{\cdot}001605}$ of 58,780·229 fr.

French Exchange on Receipt of Gold from the British Isles.—When gold is being received in France from the British Isles, to ascertain the par rate in France for a bill at sight on the British Isles, the following formula is used, with the deduction of ·595 instead of the addition of 0·535. The result will be the equivalent weight yielded by the importation of gold.

Say the sum is £2330 11*s.* 1·36*d.*, then $\frac{113{\cdot}001605}{4{\cdot}480359}$ of £2330 11*s.* 1·36*d.*

The Bank of England buys gold at £3 17*s.* 9*d.* per standard ounce, or 440 troy grains. The sign for 440 troy grains of pure gold in the British Isles is £3 17*s.* 10½*d.* This is 1·6 per mille upon £3 17*s.* 9*d.*

The charges upon the transmission of metal are ⅜ per cent.

These charges, ⅜ per cent and 1·6 per mille, together equal 0·535 per cent.

This percentage added to par 25 fr. 22·15 c. makes the rate of exchange £1 for 25 fr. 35·64 c.

Suppose the seller draws a bill upon France for 1000 fr.; the 1000 fr. would be divided by 25 fr. 35·64 c., and this will give a less weight of gold to be paid for the bill here than the drawee of the bill would have to pay in France, by the weight of pure gold which is indicated by 13·49 c. for each pound.

By the plan which the writer advocates, the 0·535 per cent. discount would be taken on the British par with one franc.

It will be seen that the extreme deviation from par is 0·535 added to 0·595, making 1·13 per cent., of this 3·8 per mille is due to what some might call coinage charges, though there are no such charges in the British Isles or France. It is a charge for the more rapid possession of money than by means of receiving back the same metal from the mints in

the shape of coin as that which was presented in the form of bullion.

The second charge, 0·75 per cent., is a variable one, and is probably too high. A large parcel of gold could be transmitted to France at $\frac{1}{8}$ per cent.

Interest for the Use of Money.—This charge, like all other charges which cause a deviation from fixed or absolute pars, is worked into the exchanges in the form of premium or discount. This charge always operates as a discount. The rate for a bill of exchange at a longer usance than at sight—bills are drawn at one month, two, three, and six months' sight—would be less than par by the rate of interest for the use of money till the maturity of the bill of exchange. Thus, if a country is shipping bullion, the rate for the chief money of account of the country to which the shipment is being made will be at a premium to the extent of the transmission and coinage charges. But the bill is, say, payable at three months' sight; there would therefore be a discount upon the bill to the extent of interest for the use of the money for three months.

Exchange of Gold for Gold.—Monetary signs in sixteen gold monetary systems for the weight of pure gold in the measure of value and chief money of account of each of seventeen gold-standard systems are given in this book. These are popularly termed "fixed pars of exchange." But the working of the exchanges of any sum by weight is more direct, simple and correct than by converting one sum into another currency by means of the sign for a weight. The formula for working by weights is the following:—

It is desired to know the French sign for the weight of pure gold indicated by the British sign of £25 3*s.* 10*d.*, or £25·1916. Then $\frac{113{\cdot}001605}{4{\cdot}480359}$ of £25·1916 gives it. $\frac{113{\cdot}00}{4{\cdot}48}$ of £25·1916 would give the answer sufficiently near for sailors, soldiers, and travellers.

It is desired to know the British sign for the French sign 251·916 fr. $\frac{4{\cdot}480359}{113{\cdot}001605}$ of 251·916 fr. gives it.

SILVER FOR SILVER.

Shanghae is shipping silver to Persia. The rate of exchange for a demand bill on Persia would therefore be at a premium by the amount of charges for transmission, &c., of silver to Persia. If this charge is to be taken on the fixed par of exchange between Shanghae and Persia, it can be added to that par in a percentage on the rate. In the following exchange the actual monetary sign in Persia will be sought for the weight of pure silver indicated by the Shanghae monetary sign.

What is the Monetary Sign in Persia for 68,576·86 Shanghae Taels? — I. Multiply the Shanghae taels by 513·0572 grains of pure silver in one tael, and divide by 63·0316 grains of pure silver in one kran, and the answer is 558,193·85 krans. II. Another mode: find the grains of pure silver indicated by 68,576·86 Shanghae taels, and multiply them by ·3173 of a shahis, the Persian monetary sign for one grain of pure silver; the answer is 558,191·80 krans. III. Another mode: multiply 68,476·86, the Shanghae taels, by 8·1396 krans, 8·139682 being the Persian monetary sign for 513·0572 troy grains of pure silver; the answer is 558,193·83 krans.

What is the Monetary Sign in Shanghae for 558,193·85 Krans?—I. Multiply 558,193·85 krans by 63·0316 grains of pure silver, which make one kran, and divide by 513·0572 grains, which make one Shanghae tael; the answer is 68,576·86 Shanghae taels. II. Another mode: multiply 35,183,851·77 troy grains of pure silver, indicated by 558,193·85 krans, by 1·9491 cash, the Shanghae monetary sign for one grain of pure silver, and the answer is 68,576·84 Shanghae taels. III. Another mode: divide 558,193·85 krans by 8·139682 krans, which is the par with one Shanghae tael; answer, 68,576·86 Shanghae taels. IV. Another mode: multiply 558,193·85 Persian krans by ·122855 of one tael, which is the par of exchange with one kran; answer, 68,576·9 Shanghae taels.

Exchange of Silver for Silver.—Monetary signs in 9 silver

monetary systems for the weight of pure silver in the measure of value and chief money of account in these nine systems are given in this book, page 7.

It is desired to know the Mexican sign for 846 Siamese ticals. The formula is the ticals multiplied by the pure silver in each in decigrams divided by the decigrams comprising the peso i.e. $\frac{846 \times 146{\cdot}64}{244{\cdot}41} =$ Answer.

GOLD FOR SILVER.

In ascertaining the weight of silver which is to be obtained for a weight of gold, use is made of the ratio between silver and gold established by the gold price of silver in a gold-standard country, and by the silver price of gold in a silver-standard country. A constant is attached to each monetary system for easily and readily ascertaining the ratio on the gold price of silver and the silver price of gold of the day.

What is the Equivalent in Shanghae with £15,864 5*s.* 10*d.* in the British Isles, the Ratio between Gold and Silver being 24·75?—I. The pure silver in a Shanghae tael, viz. 513·0572 grains, divided by 24·75, gives 20·72958 grains of gold as the equivalent with 513·0572 grains of silver. The rest of the sum is the repetition of former practice, $\frac{113{\cdot}001605}{20{\cdot}72958}$ of £15,864 5*s.* 10*d.* gives 86,479·80 Shanghae taels. II. This ratio of 24·75 between gold and silver indicates a price of silver in the British Isles of 38·1008*d.* for a standard ounce, or 444 grains of pure silver. The silver constant for China in the British monetary system is 1·155,534*d*; this, multiplied by 38·1008*d.* gives 44·02677*d.*; £15,864 5*s.* 10*d.* = 3,807,429·936o*d.* ÷ 44·02677 gives 86,479·87 Shanghae taels. The ratio of 24·75 between the metals establishes the price of gold in Shanghae at 27·9716 taels for 579·84 troy grains of gold. III. The British constant in the Shanghae monetary system is ·194884 of a tael; this figure multiplied by 27·9716 gives 5·451217 taels for one sovereign; £15,864 5*s.* 10*d.* multiplied by 5·451217 gives the answer, 86,479·69 taels.

SILVER FOR GOLD.

What is the Equivalent in Francs for R. 265,462·8a. and 6p., the Ratio between Gold and Silver being 24·75?—I. The pure silver in one rupee being 165 grains, 165 divided by 24·75 gives 6·66666 grains of gold as the equivalent of 165 grains of silver. The sum, therefore, is $\frac{6{\cdot}66666}{4{\cdot}480359}$ of 265,462·53125. 265,462·53125 × 6·66666 = 1,769,748·43858312 50 grains of gold ÷ 4·480359 = 395,001·4805 francs. II. Another method: a ratio of 24·75 between the metals establishes the Indian price for one tola, or 180 troy grains of gold at R26·99999. The gold constant at rupees per tola, or 180 grains of pure gold under the head of France is 0·02489. This multiplied by 26·99999 give 0·672029 of one rupee. This is the absolute par with one franc at the ratio of 24·75. R265,462·53125 divided by 0·672029 gives 395,016·48 fr. as the answer. III. In the French monetary system, under the head of absolute pars, the constant 3682·74 c. is attached to the Indian rupee. Divide 3682·74 by 24·75 = 148·8 c. R265,462·53125 multiplied by 148·8 c. = 395,008·2464 fr, which is the answer.

Weights the Corrective of Adam Smith's Highway in the Air.—In all these calculations the object of the writer has been to keep weights in great prominence. If it is possible that a metaphysical view of money may do great damage to the mind, this matter of weight should prove a wholesome corrective. The exchanges between countries possessing effective monetary systems is simply a question of weights of gold and silver. Prices in such countries are the same.

Exchange Tables.—If there were exchange tables for each monetary system, for the purpose of providing a rule-of-thumb process, and for despatch in arriving at the sum to be paid in one country for an amount received in another country, the number of such tables would be 756. It will be observed that by the use of weights the fixed equivalents of gold are readily and correctly reached between gold-standard systems, and the like between silver-standard systems, for any amount

that may have to be exchanged. And that also by the use of the ratio to get an equivalent in gold for the weight of silver, and to proceed as if both were gold, is also exceedingly simple and unfailing in correctness. Given the multiples of the weight of pure standard metal in each of the world's chief moneys of account, and the multiples of the monetary sign for one troy grain of the standard substance in each monetary system, also the ratio established by the gold price of silver in gold-standard countries, and the silver price of gold in silver-standard countries; the premium or discount upon pars resulting from charges; and it is no exaggeration to say that every properly taught young person should be able to work the exchanges with facility and correctness. It should be within the practice of every one to reach fixed and absolute pars of exchange between all the monetary systems of the world.

The figures, which do not amount to 7000, by which these results can be reached by every one who can do decimal multiplication and division, are herein presented. The mental and manual labour with these figures is copying, adding, and subtracting.

The system herein set forth of working the exchanges of small or large sums by the weights of pure metal in the world's moneys of account is recognized by a writer in the New York paper, the *Nation*, as the only scientific one, and it is added that it was tried and abandoned after eight days' experience there some twelve years ago, *because it did not commend itself to those most largely interested in the matter.* The abolition of exchange tables, and the adoption of a universal interest table upon whole numbers and such decimal parts of the same as might be found expedient, would be a great stride to the volapuk of money.

INCONVERTIBLE PAPER CURRENCY.

So far the exchanges between countries possessing effective monetary systems has been dealt with. Currency systems differ from monetary systems in this, that promises to pay a

weight of standard substance indicated upon the face of the promise, at the date when the promise becomes due, cannot be fulfilled. The weight indicated upon the promises may be either at a heavy or small premium in them wherewith to command the weight of standard substance with which they should be at par. Or it may be that the standard substance cannot be procured for any number of promises to pay it. It must not be supposed that because of this the internal and international interchanges of a country must come to a standstill.

There are various habits among the people of the world with regard to the use of intermediaries in effecting interchanges of substances and services between man and man. In Madagascar silver franc pieces are cut into bits, and the prices of commodities and services are weighed out in these small pieces, each man carrying his own scales for the purpose. In India, China, in fact, mostly throughout the East, weight of the standard substance or measure of value, and of gold, is the first thought. Among the masses of the inhabitants of the English-speaking people of the North American continent, paper promises to pay gold or silver are counted as everything and all-sufficient under all circumstances, and greatly superior as an intermediary to a weight of gold or silver. That an alteration in the nature of the intermediary will not greatly interfere with current individual and international interchanges of commodities and services is evident, if it be accepted that the basis of all interchanges is barter.

Now, although this be true, and according to economic teaching, the basis of all interchanges of things is barter, it does not follow that upon the introduction of 7 intermediaries interchanges of things would still be conducted on the conditions of barter. With one intermediary only for all the world it is evident the laws of barter would be preserved. See J. S. Mill, Book III. Chap. vii., Sec. 3, Chap. xviii. on international values, where, though not expressed, one intermediary only is contemplated, and Chap. xxi. Sec. 1, especially paragraph 2 and Sec. 3.

Exchange of Gold for Inconvertible Paper.—Whenever the exchange between two countries for a first-class bill of exchange at sight does not closely approximate to metal points, it is an indication that one or both countries do not possess effective metal monetary systems. Fixed pars of exchange—that is to say, the weight of pure metal in one country for the same weight of pure metal in another country—are given in monetary signs of seventeen gold and twelve silver standard systems in this book; also monetary signs at the ratio of one to one between the gold and silver monetary systems. (See Tables XXI. to XXVIII. at the end of the book.)

Effect of Use of Inconvertible Note Currency upon Current Interchanges of Substances and Services.—The following shows the working and the effects of the use of inconvertible paper upon current interchanges of substances and services:—Suppose countries A and B possess equally well-organized banking systems, but no intrinsically valuable currency or reserves; that in A the unlimited legal tender and final discharger of debts consists of excessive issues by the state of stamped pieces of paper, whilst in B it consists of moderate issues of stamped pieces of paper. Within certain limits, interchanges of raw or manufactured articles, stocks, shares, bonds, services, &c., could be as freely effected as though the instrumentality of gold and silver were employed. The larger quantity of stamped paper in A constituting price than of stamped paper in B, would have no deterrent effect upon the interchanges. The high prices for which the goods, &c., of B sold in A would have to be given for the goods, &c., desired by B, and *vice versâ* with regard to the goods, &c., of A in country B. The impediment to interchanges would arise when the goods of one country are required by the other in excess of demand for goods, &c., on the part of the country of whom the requirement is made; since the paper of A would have no value in B, nor the paper of B in A. There could be no such exchange relation between these countries as substances of value embodied, say, in gold and silver at present affords.

Importance of a Stable Measure of Value for Deferred Obligations.—A Peruvian paper sol or dollar is worth just now 1½*d.* Say all Peruvian paper sols are not worth more. Silver is the standard in Peru. The silver or paper sol should contain or exchange for 347·228 grains of fine silver. Take the following premise : three periods in the hypothetical history of Peru—in 1874, 1879, and 1904. During the whole time no change in the value-giving factors embodied in exchangeable articles ; also no change in Peru in the purchasing power of silver during the thirty years ; that during the whole time a paper sol and a silver sol are equally legal tenders ; that in 1874 the silver and the paper sol were at par, and that they will be at par again in 1904. 1½*d.* at sixteen parts of silver to one part of gold would be 11·3 grains of silver. Comparing the respective positions of the debtors and the creditors in 1889 in connection with their engagements made in 1874, and of the debtors and creditors in 1904 in connection with their engagements contracted in 1889, the following positions are shown :—The debtor in 1889 pays value-giving factors embodied in substances represented by 11·3 grains of fine silver for value-giving factors embodied in substances received by him in 1874, and represented by 347·228 grains of fine silver. In other words, he pays only one-thirtieth part of the real value which he borrowed. By the same amount the creditor receives less than he lent. Comparing the position of the two parties in 1904, it is at once seen that it is reversed, the creditor getting the benefit which the debtor before enjoyed. This is an extreme illustration, but it strongly shows the paramount importance of obtaining and preserving an effective standard substance for monetary purposes.

The Vast Difference between a Monetary System and a Currency System.—From these considerations it will be seen that it would be difficult to make too much of the difference between a monetary system and a currency system. In an effective monetary system a price and a rate of exchange are both, at bottom, definite weights of pure gold or pure silver disguised under the terms of the money-table of the country using the

metal standard or measure of value. In a currency system, a promise to pay metal which cannot be fulfilled is unquestionably an intermediary to which, in its action, the name and function of price may be attached. But it is not a measure of value, and is only a register to be estimated at a discount on the metal it professes to equal in exchange value. In a country the currency in which consists of inconvertible paper, the limits to the fluctuation of the exchanges range from a premium in paper on the standard metal ranging from a small percentage over the metal represented to thousands per cent. The recent British rate of exchange or price of an Argentine paper peso, which professes to be equivalent to 22·401795 troy grains of pure gold, the fixed par value of which with Great Britain is 47·56*d.*, was 8·5*d.* This shows that the paper price of gold in that Republic was at 459·53 premium. In other words, the paper currency was at a discount of 82·127 per cent.

CHAPTER VI.

Proposed rectification of the unscientific working and unintelligible quotations of the foreign and colonial exchanges—London daily newspapers' weekly quotations of the foreign and colonial exchanges—Intelligible quotations of exchanges—New method of exchange quotations—Interpretation of exchange quotations—The scientific mode of quoting and working the world's exchanges—Premium or discount on fixed sign for weight, or upon weight—Objections to change met—Exchanges in March, 1893, between London and twenty-five foreign and colonial places.

BESIDES the premium or discount on one factor, such as $\frac{1}{2}$ per cent. premium on £1, or $\frac{1}{2}$ per cent. discount on £1, there are two modes of working and quoting the foreign and colonial exchanges in the British Isles. One is in which the first factor is the fluctuating sign or weight of pure gold for a fixed sign or weight of pure gold or pure silver; for instance, 53·29*d.* or 25·0885 troy grains of pure gold, for one Portuguese milreis or 25·0885 troy grains of pure gold. The other is when the first factor in the quotation is a fixed sign or weight of pure gold for a fluctuating sign or weight of either pure gold or pure silver; as, for instance, £1 or 113·0016 troy grains of pure gold for 25 fr. 22 c. or 113·0016 troy grains of pure gold. It must be impressed upon the mind that pure gold is the thing worked with in this country. All credit instruments, such as notes, cheques, bills of exchange, &c., are only promises to pay gold. Silver and copper coins are only tokens of the gold. Moneys of account such as $\frac{1}{64}$ part of 1*d.* or the $\frac{1}{15360}$ part of £1 mean and do the work of 0·007356 of one troy grain of pure gold.

In exchanging a foreign or colonial note or bill of exchange in this country, it makes a great difference whether the exchange is quoted in fluctuating pence or a fixed pound for the moneys of account of another country in arriving at

an estimate of the advantage or disadvantage of the operation to the money-changer and his constituent. If the exchange is quoted in pence, the amount of the bill would be multiplied by pence. If the exchange is quoted in fluctuating money of the country forming the second factor, the quotation or the weight would form the divisor of the amount named on the bill. Take 1000 fr. and treat them in the two different ways. The par of 1 fr. or 4·4803 troy grains of pure gold is 9·516*d.* or 4·4803 troy grains of pure gold; a quotation is given at $9\frac{5}{8}$ or 4·5318 troy grains of pure gold. This looks a good rate for the seller of the bill; in fact, it gives a premium of 1·2 per cent. The par of £1 or 113·0016 troy grains of pure gold is 25 fr. 22·15 c. or 113·0016 troy grains of pure gold. A quotation is given of 25 fr. 60 c., or 114·694 troy grains of pure gold. This looks a good rate, unless the party who wishes to get English money for the bill knows that the amount of the bill will have to be divided by 25·60. This rate gives a discount of 1·4 per cent. In the first instance he would get £39 11*s.* 8*d.* for the 1000 fr.; in the second instance, £39 0*s.* 1*d.*, or 1·3 per cent. less. The invariable rule in each country should be—The fluctuating rate as the first factor; the second factor, the fixed rate or sign for the weight of pure gold or pure silver in the chief money of account of the country upon which the rate is quoted. Under this rule the fluctuating rate will always be used as a multiplier of the amount upon the note or bill. Any youth who can work the unit-of-weight system can convert the rates of exchange as given in the columns of the daily papers into definite weights of pure gold or pure silver, and determine at once whether a country has an effective monetary system or only a currency system, and whether the exchange is at a premium or a discount. It is doubtful if there will be any immediate alteration in the world's present mode of working and quoting the exchanges. The mind will be guided right if it systematically reverses the quotation when it finds that the second factor of it is not the sign for or the weight of the chief money of account in the country upon which the quotation is made.

TABLE VI.

LONDON DAILY NEWSPAPERS' WEEKLY QUOTATIONS OF THE FOREIGN AND COLONIAL EXCHANGES.

Course of Exchange.

Amsterdam and Rotterdam	12·0$\frac{1}{2}$	to 12·1$\frac{1}{2}$
3 m.s.	12·2$\frac{7}{8}$	to 14·4$\frac{1}{8}$
Antwerp and Brussels, 3 m.s.	25·46$\frac{1}{4}$	to 25·51$\frac{1}{4}$
Berlin and German bank places	20·56	to 20·60
Paris, cheques	25·23$\frac{3}{4}$	to 25·28$\frac{1}{4}$
„ 3 m.s.	25·46$\frac{1}{4}$	to 25·51$\frac{1}{4}$
Marseilles „	„	„
Antwerp „	11·83$\frac{3}{4}$	to 11·88$\frac{1}{4}$
St. Petersburg „	26$\frac{1}{16}$	to 26$\frac{3}{16}$
Moscow „	26	to 26$\frac{1}{8}$
Genoa „	25·86$\frac{1}{4}$	to 25·91$\frac{1}{4}$
Leghorn „	„	„
Naples „	„	„
Barcelona „	44$\frac{1}{2}$	to 44$\frac{5}{8}$
Cadiz „	„	„
Madrid „	„	„
Seville „	„	„
Malaga „	„	„
Valencia „	„	„
Valladolid „	„	„
Santander „	„	„
Bilboa „	„	„
Lisbon „	47	to 47$\frac{1}{8}$
Oporto „	gold nom.	
Copenhagen „	18·35	to 18·39
Christiania „	18·36	to 18·40
Stockholm „	„	„

Purchasing Rates for the Week's Mail.

Bombay, Calcutta, Colombo, Madras, Kurrachee, Delhi, Rangoon, and Akyab	1/5$\frac{1}{2}$	on demand.
Batavia and Sourabaya	F12.35	„
Singapore and Penang	3/3$\frac{5}{8}$	„
Hong Kong	3/3$\frac{1}{8}$	„
Yokohama and Hiogo	3/3$\frac{3}{8}$	„
Shanghae tael	4/6$\frac{1}{8}$	„
Manila	3/3$\frac{1}{3}$	„
Interest drafts on Calcutta	1/5$\frac{7}{32}$	„
„ coupons	1/5$\frac{1}{3}$	„

Quotations for drafts at longer sight are given, but the above are sufficient for my purpose.

When the weights of pure gold, pure silver, and inconvertible paper, indicated by the above signs, are better understood and people have learned the vast importance of measures of value embodied in standard substances such as

gold and silver, and can reach the sign through the thing signified, the quotation might be a sign for a chief money of account, and the weight of pure gold or silver which it contains. As in the quotation of the exchange between the British Isles and the Netherlands, instead of 12·0½ fl., 112·154 g., g. standing for grains of gold. The publication of the proportion between gold and silver established by the market gold price of silver in gold-standard countries, and the market silver price of gold in silver-standard countries, is of great value as a guide to the exchanges of gold for silver and of silver for gold. The proportion applied to the quotations of pure gold for pure silver, and of pure silver for pure gold, at once discloses the deviation from absolute par. Thus take from the following columns the 8·239 grains of pure gold for the rupee, and multiply them by the proportion of pure silver to one of pure gold, say it is 20·5 parts, and 168·8995 grains of pure silver are obtained ; this on the weight of the rupee, viz. 165 grains, gives 2·36 per cent. more silver, and shows that the rate on absolute par is a premium in the British Isles of 2·36 per cent. Apply the same to the Shanghae tael, and the weight is 1·08 per cent. more than the weight of pure silver in the tael, and shows that the rate on absolute par in the British Isles is a premium of 1·08 per cent.

TABLE VII.

INTELLIGIBLE QUOTATIONS OF EXCHANGES.

	Grains of gold (g.) Grains of silver (s.)	Grains of gold (g.) Grains of silver (s.)	Grains of gold (g.) Grains of silver (s.)
Amsterdam and Rotterdam ...	£ or 113·0016 g. for 12·0½ fl.	or 113·154 g. to 12·1⅛ fl.	or 112·289 g.
3 m.s.	„ „ 12·2⅞ fl.	„ 114·836 g. „ 14·4⅛ fl.	„ 134·700 g.
Antwerp and Brussels	„ „ 25·46¾ fr.	„ 114·079 g. „ 25·51¼ fr.	„ 114·303 g.
Berlin and German bank places	„ „ 20·56 mks.	„ 113·716 g. „ 20·06 mks.	„ 113·938 g.
Paris, cheques	„ „ 25·23¾ fr.	„ 113·071 g. „ 25·28¼ fr.	„ 113·300 g.
„ 3 m.s.	„ „ 25·46¼ fr.	„ 114·079 g. „ 25·51¼ fr.	„ 114·303 g.
Marseilles... ... ... 3 m.s.	„ „ „	„ „ „	„ „
Austria * ... ... „	„ „ 11·83¾ fl.	„ 2029·776 s. „ 11·88⅜ fl.	„ 2038·349 s.
St. Petersburg * ... ... „	26$\frac{1}{16}$ or 12·271 g. to 26$\frac{11}{16}$*d.*	„ 12·330 g. for rouble	„ 277·7722 s.
Moscow *... ... ... „	26*d.* or 12·242 g. „ 26⅛*d.*	„ 12·300 g. „ „	„ „
Genoa * ... ... „	£ or 113·0016 g. for 25·86¼ fr.	„ 115·870 g. to 25·91¼ fr.	„ 116·115 g.
Leghorn *... ... ... „	„ „ „	„ „ „ „	„ „
Naples * ... ... „	„ „ „	„ „ „ „	„ „
Barcelona * & 8 other cities „	44½*d.* or 20·952 g. to 44⅝*d.*	„ 20·010 g. for 5 pesetas	„ 22·401 g.
Lisbon * ... ... „	47*d.* or 22·130 g. „ 47⅛*d.*	„ 22·188 g. „ 1 milreis	„ 25·0885 g.
Oporto * ... ... „		Gold nominal	
Copenhagen ... ... „	£ or 113·0016 g. for 18·35 kr.	or 114·188 g. to 18·39 kr.	„ 114·436 g.
Christiania ... ... „	„ „ 18·36 kr.	„ 114·250 g. „ 18·40 kr.	„ 114·499 g.
Stockholm ... ... „	„ „ „	„ „ „ „	„ „

* The places marked thus conduct their business on inconvertible paper. The bills on such places are not encashable in standard metal, but are met by their inconvertible currency.

JULY 9TH, 1891.

PURCHASING RATE FOR THE WEEK'S MAIL.

Gold price of Silver 46*d.* per 444 grains fine Silver.—Proportion 20·500 of Silver to 1 of Gold.

	Sight.	Grains of fine gold.			Grains of fine silver.
Bombay, Calcutta, Madras, Colombo, Kurrachee, Delhi, Rangoon, Akyab	1/5½	or 8·239	for	rupee	165
Batavia and Sourabaya ...	£	„ 113·0016	„	12 fl. 35 c.	115·420 g.
Singapore and Penang ...	3/3⅝	„ 18·657	„	dollar	377·0586
Hong Kong...	3/3¼	„ 18·421	„	„	„
Yokohama and Hiogo ...	3/3⅝	„ 18·657	„	yen	374·400
Shanghae tael	4/6⅛	„ 25·484	„	tael	513·0572
Manila	3/3½	„ 18·598	„	dollar	360·5614
Interest drafts on Calcutta	1/5 7/32	„ 8·195	„	rupee	165
„ coupons	1/5½	„ 8·239	„	„	„

Proportions of Silver to One of Gold should be attached to Gold Prices of Silver and to Silver Prices of Gold.—Attached to the gold price of silver in every city where there is a gold standard there should be the proportion of silver to one of gold established by the price. And to the quotation of the silver price of gold in every city where there is a silver standard, the proportion of silver to one of gold should be added. Say the London price of silver is 45½*d.* par British standard ounce, or 21·423 troy grains of pure gold for 444 troy grains of pure silver. This price is equivalent to 20·725 parts of pure silver to one part of pure gold.

A SUGGESTED MANNER OF QUOTING AND WORKING THE WORLD'S FOREIGN AND COLONIAL EXCHANGES. RATES IN THE BRITISH ISLES AS AN EXAMPLE.

The following table shows the London rates of exchange upon the undermentioned countries and cities at the proportion of 20·725 parts of pure silver to one part of pure gold. Column I., names of countries and cities. The currency of those places marked with an asterisk consists

at present of inconvertible paper. Column II., variable (*v*) troy grains of pure gold in London for fixed (*f*) troy grains of pure gold or pure silver in each country's chief money of account at mint-issue weight, with the equivalent weight of pure gold for pure silver at the market rate of the day; (*a*) attached to the weight of gold in the second factor of the quotation indicates the absolute par of pure gold for pure silver at the price of silver at the head of the table. Column III., signs for one troy grain of pure gold and one troy grain of pure silver in each place named. The sign for one troy grain of pure gold in the British Isles is 2·123863*d*.

The second factors in Column II. are the weights of the chief moneys of account used, or which should be used, in the countries to which they are attached. Market rate 20·725 parts of silver to one part of gold.

TABLE VIII.

I. Names of Countries and Cities.	II. Variable (*v*) troy grains of pure gold (*g*) for fixed (*f*) troy grains of pure gold (*g*) or pure silver (*s*) with the absolute (*a*) equivalent of gold for the silver at the market price of the day.								III Signs for 1 troy grain of gold (*g*) and 1 troy grain of silver (*s*).		
I. Alexandria	113·0016	*v.g.*	for	114·7781	*f.g.*				8·7124	ochrs	*g.*
II. Constantinople	100·5436	,,	,,	102·0804	,,				39·1848	paras	,,
III. Lisbon *	18·951	,,	,,	25·0885	,,	currency.			39·8589	reis	,,
IV. Uruguay *	17·4562	,,	,,	24·0150	,,	,,			4·1638	cents.	,,
V. Newfoundland	23·1453	,,	,,	23·5451	,,				4·2471	,,	,,
VI. United States North America	23·1654	,,	,,	23·22	,,				4·3066	,,	,,
VII. Argentine Republic	9·472	,,	,,	22·4017	,,	currency.			44·639	,,	,,
VIII. Cuba *	12·1675	,,	,,	21·5019	,,	,,			4·6508	,,	,,
IX. Chili *	10·5742	,,	,,	21·1762	,,	,,			4·7223	,,	,,
X. Brazil *	9·4567	,,	,,	12·682	,,	,,			78·8519	reis	,,
XI. Netherlands	9·472	,,	,,	9·364	,,				16·6998	cents	,,
XII. Scandinavia	6·3721	,,	,,	6·228	,,				16·07	ores	,,
XIII. Germany	5·5837	,,	,,	5·5312	,,				18·079	pfennigs	,,
XIV. France	4·4972	,,	,,	4·4803	,,				22·32	centimes	,,
Italy *	4·3563	,,	,,	4·4803	,,	currency.			22·32	,,	,,
Belgium	4·4983	,,	,,	4·4803	,,				22·32	,,	,,
Spain *	4·3478	,,	,,	4·4803	,,	currency.			22·32	,,	,,
XV. Shanghae	25·6372	,,	,,	513·0572	*f.s.*	=	24·7556	*a.g.*	1·9491	cash	,,
XVI. Cochin Cochin	18·3742	,,	,,	378·0	,,		18·2386	,,	0·2645	cents	,,
XVII. Mexico	18·7652	,,	,,	377·0586	,,		18·1933	,,	0·2652	,,	,,
XVIII. Java	18·4361	,,	,,	376·1434	,,		18·1492	,,	0·2658	,,	,,
XIX. Japan	18·5478	,,	,,	374·4	,,		18·0651	,,	0·2671	,,	,,
XX. Penang, &c.	17·6821	,,	,,	360·5614	,,		17·3978	,,	0·2773	,,	,,
XXI. Peru, &c. *	13·7426	,,	,,	347·2278	,,		16·7540	,,	currency.	0·288	,,	,,
XXII. Tripoli	14·7314	,,	,,	313·2101	,,		15·1126	,,		0·0639	piastres	,,
XXIII. Russia *	11·6431	,,	,,	277·7722	,,		13·4027	,,	currency.	0·36	copecks	,,
XXIV. Siam	9·7453	,,	,,	206·285	,,		9·9909	,,		0·1551	phai-nungs	,,
XXV. Austria-Hungary	7·4436	,,	,,	171·4703	,,		8·2736	,,	currency.	0·5832	kreutzers	,,
XXVI. India, &c.	8·2634	,,	,,	165·0	,,		7·9648	,,		1·1636	pies	,,
XXVII. Venezuela *	2·7543	,,	,,	69·4468	,,		3·3508	,,	currency.	1·44	cents	,,
XXVIII. Persia	2·9135	,,	,,	63·0316	,,		3·0413	,,		0·3173	shahis	,,
XXIX. Tunis	1·8436	,,	,,	43·0415	,,		2·0755	,,		1·1159	fels	,,

Column III. would not enter into newspaper quotations.

If it is desired to get at the signs for these weights, the weights forming the first factor in Column II. must be multiplied by 2·123863*d.*, and the answer will be the signs for British money. The silver weights in Column II. forming the second factor must be multiplied by the sign for 1 troy grain of silver attached in Column III., and the answer will be the money of the country named in Column I.

INSTRUCTIONS FOR INTERPRETING THE LONDON DAILY NEWSPAPERS' WEEKLY QUOTATIONS OF THE "COURSE OF THE EXCHANGES" AND THE PURCHASING RATE OF BILLS OF EXCHANGE UPON THE EAST.

The unit-of-weight system furnishes a very simple key to determine what is meant by the meagre information contained in the weekly quotations of exchanges in the London daily newspapers. Of the 161 countries, all of which probably have transactions in the foreign and colonial exchanges, mention is made of twelve in Europe and ten in the East only. Quotations are given for as many as three places in Italy and nine in Spain, the three in Italy being almost invariably the same quotations, which may be said also of the nine in Spain. Take the first one against Rotterdam and Amsterdam 12·0½ to 12·1½, presumably on demand as the next quotation attached to the same places is for 3 m.s. drafts. What do these figures mean? As the quotation is for the exchange between the British Isles (doubtless London is meant) and the places named, this 12·0½ to 12·1½ must be signs for the weights of the standard substance of one country or the other. The above table shows that in the Netherlands the chief money of account at mint-issue weight is 9·364 troy grains of pure gold. This weight, multiplied by 12 fr. 1½ c., makes 112·508 troy grains of pure gold. Knowing that the British sovereign contains 113·0016 troy grains of pure gold at mint-issue weight, the correct conclusion is arrived at, namely, that 12·1½ indicates 12 fl. 1½ c., or 112·508 troy grains of pure gold. The only other assumption which could be made is that 12·1½ mean 12*s.* 1½*d.*, which indicates 68·505 troy grains of pure gold in the British Isles. Divide 68·507 by the fine gold in the florin, and the result is 7 fl. 26·2 c. This cannot be the right answer, because of the following rule of the exchanges:—

Either a variable sign or weight of pure metal in more or less than one country's chief money of account, for a fixed sign

or weight of pure metal in another country's whole chief money of account, or a fixed sign or weight of pure metal in a whole money of account of one country for a variable sign or weight of pure metal in more or less than one whole money of account of another country.

It will be noticed, by reference to the table, that this quotation differs from the proposed one. The quotation, therefore, has to be used as a divisor of the amount of florins to determine the equivalent in British pounds. Divide 1000 fl. by 12·015, the result is £83 4*s.* 7*d.* The newspaper quotation gives two rates 12·0½ to·12·1½, 1000 fl. at 12·0½ and British pound equals £83 5*s.* 11*d.*

Between countries which use the same weight of pure gold as their measure of value and means of payment, a variation from par is quoted by a premium of discount, as the weight given for the money of account in another country is more or less than the weight in the money of account. The same between silver-standard countries where the measure of value and means of payment is the same weight of pure silver: as between the British Isles and Australasia, France and Belgium, India and Mauritius, U.S.A. and Liberia.

Fixed Gold Pars same Weight of Pure Metal under Different Signs. Fixed Silver Pars same.—The fixed gold pars of exchange being invariable signs for invariable weights of pure gold, and the fixed silver pars of exchange being invariable signs for invariable weights of pure silver, the scientific mode of working and quoting the exchanges would be by premium and discount in one country for the whole money of account in another country.

Exchanges between Effective Metal Standard Countries and Countries using Inconvertible Paper might be worked also by Premium and Discount.—This rule is applicable to working and quoting the exchanges between effective gold-standard and between effective silver-standard countries. The absolute par, that par which exists between a gold-standard country and a silver-standard country, must be based upon the fluctuating price of silver in a gold-standard country, and upon the fluctuating price of gold in a silver standard

country. The exchanges with inconvertible paper currencies might be worked and quoted in the same manner. Were this the practice, Column III. for the British Isles, in the preceding chapter, would only contain the weights or signs for the weights of the chief money of account of gold-standard countries with the rate of premium or discount attached to be paid in the British Isles; the weights or signs for the weights of pure gold to be paid for each chief money of account in silver-standard countries established by the market gold price of silver or the market silver price of gold of the day, with the premium or discount attached. To this might be added the weight of pure silver in each chief silver money of account in silver-standard countries.

The following table gives the proportion of silver to one of gold established by the market price of silver for the day. Column I., Names of countries and cities. Column II., Fixed (f.g.) troy grains of pure gold, being the world's gold measures of value and signs for the same in British money, with premium or discount attached, being the rates of exchange of the day. Absolute (a.g.) weights in troy grains of pure gold and signs for the same constituting par for the chief standard silver coins on the day's market price of silver with the premium or discount attached, being the rates of exchange of the day; also the pure silver (f.g.) in the chief silver moneys of account purchased. All weights of coins at mint-issue weights.

TABLE IX.

Date, October 1st, 1891.

PROPORTION OF SILVER TO 1 OF GOLD, 20·725.

Col. I. Names of countries and cities.	Col. II. Fixed (f.g.) and absolute (a.g.) gold weights with premium or discount attached and fixed (f.s.) silver weights in the world's chief moneys of account.					
I. Alexandria ...	114·7781 f.g. or	20*s.* 3·77*d.*	$\frac{3}{8}$ p.c. dis.			
II. Constantinople	102·0804 „	„ 18*s.* 0·80*d.*	$\frac{1}{4}$ „			
III. Lisbon * ...	25·0885 „	„ 53·29*d.*	$4\frac{1}{4}$ „			
IV. Uruguay * ...	24·0150 „	„ 51·00*d.*	40 „			
V. Newfoundland	23·5451 „	„ 50·00*d.*	$\frac{7}{32}$ „			
VI. United States N. America	23·2200 „	„ 49·29*d.*	$\frac{7}{16}$ p.c. pm.			
VII. Argentine Republic * ...	22·4017 „	„ 47·56*d.*	67 p.c. dis.			
VIII. Cuba * ...	21·5019 „	„ 45·66*d.*	20 „			
IX. Chili * ...	21·1762 „	„ 44·97*d.*	60 „			
X. Brazil * ...	12·6820 „	„ 26·92*d.*	14 „			
XI. Netherlands ...	9·3640 „	„ 19·84*d.*	$\frac{5}{16}$ „			
XII. Scandinavia ...	6·2280 „	„ 13·20*d.*	$\frac{1}{4}$ p.c. pm.			
XIII. Germany ...	5·5312 „	„ 11·73*d.*	$\frac{3}{8}$ „			
XIV. France ...	4·4803 „	„ 9·51*d.*	$\frac{1}{4}$ „			
Italy * ...	4·4803 „	„ 9·51*d.*	3 p.c. dis.			
Belgium ...	4·4803 „	„ 9·51*d.*	$\frac{1}{4}$ „			
Spain * ...	22·4015 „	„ 47·57*d.*	3 „			
XV. Shanghae ...	24·7556 a.g.	„ 52·57*d.*	1 p.c. pm.	513·0607 f.s.		
XVI. Cochin China	18·2386 „	„ 38·78*d.*	$\frac{3}{4}$ „	378·0000 „		
XVII. Mexico ...	18·1933 „	„ 38·64*d.*	1 p.c. dis.	377·0586 „		
XVIII. Java	18·1492 „	„ 38·54*d.*	$\frac{7}{8}$ „	376·1434 „		
XIX. Japan	18·0651 „	„ 38·36*d.*	$\frac{15}{16}$ p.c. pm.	374·4000 „		
XX. Penang, &c. ...	17·3978 „	„ 36·95*d.*	$\frac{3}{8}$ „	360·5614 „		
XXI. Peru, &c. * ...	16·7540 „	„ 35·58*d.*	48 p.c. dis.	347·2278 „		
XXII. Tripoli ...	15·1126 „	„ 32·09*d.*	$\frac{3}{4}$ „	313·2101 „		
XXIII. Russia * ...	13·4027 „	„ 28·46*d.*	8 „	277·7722 „		
XXIV. Siam	9·9909 „	„ 21·22*d.*	$1\frac{1}{4}$ p.c. pm.	206·2850 „		
XXV. Austria - Hungary * ...	8·2736 „	„ 17·57*d.*	7 p.c. dis.	171·4703 „		
XXVI. India, &c. . .	7·9648 „	„ 16·91*d.*	$3\frac{1}{4}$ p.c. pm.	165·0000 „		
XXVII. Venezuela * ...	3·3508 „	„ 7·11*d.*	22 p.c. dis.	96·4468 „		
XXVIII. Persia ...	3·0413 „	„ 6·46*d.*	2 p.c. pm.	63·0316 „		
XXIX. Tunis	2·0755 „	„ 4·41*d.*	$\frac{7}{8}$ p.c. dis.	43·0415 „		

QUOTATIONS AND WORKING OF THE WORLD'S FOREIGN AND COLONIAL EXCHANGES BY PREMIUM AND DISCOUNT.

This is undoubtedly the scientific mode of quoting and working all foreign and colonial exchanges. It could never lead to the confusion which the present system does. There never could arise the slightest difficulty in understanding what the rate of exchange meant or how to work it. The exchange tables would not be quite so simple to construct, and there may be some other objections to offer to the system, but they are hardly likely to be of such a nature as would outweigh the benefits to the trading and non-trading world which such a change would confer.

We have seen that exchanges between countries using the same weight of metal for their chief standard money of account are worked by premium and discount on fixed pars. Between countries using the same metal but in different quantities in their chief standard moneys of accounts, the pars of exchange are as tightly fixed as between countries using the same weight of metal in their chief moneys of account. Why are the exchanges between the British Isles and Australasia not quoted 19*s.* 9½*d.* in the British Isles for £1 in Australasia, instead of at a discount, or £1 0*s.* 2*d.* for £1 in Australasia, instead of at a premium? It is obvious that a premium and discount are much simpler to quote and work. And since clever men are constantly befogged over the exchange, the simplicity of the use of premium or discount on pars would lift them into a clearer atmosphere.

As the intelligence of mankind is advanced through proper education upon the subject of money, it will appear that the only scientific manner of working the exchanges is by premium and discount on one factor; that factor between gold-standard countries being a fixed one, and also a fixed one between silver-standard countries—one weight of pure gold or one weight of pure silver. Between countries one of which possesses a gold standard and the other a silver standard, the factor must be a weight of pure gold in a gold-

standard country, and a weight of pure silver in a silver-standard country. Between the first group of countries possessing different chief moneys of account and numbering fifteen, the pars of exchange are fixed. Also between the second group, numbering thirteen, the pars are also fixed. The third group comprises the twenty-eight different chief moneys of account in the world, and the pars between them are absolute, upon the daily gold market price of silver, and the silver market price of gold. In the 161 and more countries of the world making use of the exchanges, the deviation from fixed and absolute pars will find expression in more or less of the weight of the pure standard substance for the fixed or equivalent weight of standard substance embodied in the chief money of account in the country upon which the bill is drawn. Of course such a proposed change as this in the quoting and working the world's exchanges is likely to be considered perfectly impracticable by all parties interested in maintaining the present mode of quoting and working the exchanges. All that I would advance just now in favour of this change is that it is scientific, reasonable, and intelligible by the simplest minds; that the quoting and working of the exchanges between these islands and Australasia, between France and Belgium, between the United States of North America and Liberia, and between India and the Mauritius, &c., are effected in the manner suggested for the whole world, and that I cannot at present see anything so exceptional in the position of these countries to debar other countries of the world from following their examples.

The two main objections which will be urged to this mode of working the exchanges are that upon each sum which has to be converted into some other money of account which does not contain the same weight of pure metal, two calculations will have to be made to arrive at it. The second is that some traders find it difficult to adjust their accounts to the premium and discount. Between countries the chief moneys of account in which contain the same weight of pure metal as in the countries mentioned, only one calculation is

necessary—that of the premium or discount upon the amount. The traders between such countries have to meet the second objection, which is easily overcome, as is shown at p. 170. The prime objection remains, and it is a serious one. But there are considerations of a compensatory nature.

Exchanges worked by Premium and Discount on One Factor.—The first calculation would be the conversion of the sum to be dealt with into the money of the other country. This between gold-standard countries will always be at a fixed par. Say an invoice on any sum in the British Isles is to be converted into francs. It would always be at 9·515*d.* per franc, or 25 fr. 22·15 c. per pound; either rate produces the same result. There would be only one exchange column in any exchange tables of sterling into French money. The mind of the practised worker of the exchanges would become so habituated to the francs and parts of the same for sterling money, that the conversion would become mechanical. The next calculation is the premium or discount. One interest table would be applicable to the twenty-nine monetary systems with which the people of the British Isles have to do. If tables do not exist with adequate subdivisions, they can easily be made. The French quotation in Belgium embraces $\frac{1}{32}$ of 1 per cent., or 0·0015009 of one troy grain of pure gold. These observations are also applicable to fixed silver pars of exchange.

For quoting and working the exchanges by premium and discount upon absolute pars of exchange, the first calculation would be to find the proportion established between gold and silver by the gold price of silver or the silver price of gold, of the day. This proportion would determine the weight of gold to be paid for a chief silver money of account, or of silver to be paid for a chief gold money of account. The second calculation would be the premium or discount on the amount ascertained by the first calculation. It is not the object of the writer to furnish more than a complete basis for the construction of exchange tables between all countries of the world. Turning to the fifth edition of Sig. L. Bartlett-Amati's useful "Tables of Reduction of the Weights,

Measures, and Money of the Chief Commercial Nations of the World," there will be found fifty-nine pages containing 708 columns of exchanges, of which forty-three pages, or 516 columns, give the exchanges of gold for gold between the British Isles and the U.S.A., the Argentine Republic, Austria-Hungary, France, &c., Denmark, Germany, Portugal, Spain, Egypt, and Turkey. On the proposed system twenty columns would represent the fixed pars with all these countries for any amount of sterling. The remaining sixteen pages, or 192 columns, give the exchanges of gold for silver between the British Isles and Russia and India only. It will be seen that these tables, which are very good as far as they go, do not deal with a moiety of the world's twenty-nine monetary systems. It may be fairly estimated that any exchange table maker could set forth, in complete manner, tables for the twenty-eight monetary systems for use in the British Isles, on the mode of working of the exchanges advocated by me, in the same space. It may be many years before this scientific mode of working the world's exchanges is practised, should it ever be so practised. To the uninitiated, which embraces the mass of mankind, even among those who work the exchanges and obtain their living by the occupation, it would be a great boon, but more especially to travellers, sailors, soldiers, and others among the yearly increasing number of those who visit other countries and have occasion to deal with foreign or colonial money. Whatever may happen, this dissertation will be of use to the intelligent student of money. Though no such change as I advocate may take place, I do most strongly urge upon the world that, for the purpose of securing simplicity, uniformity, and conformity with science, the first factor in quoting and working exchanges upon two factors should invariably be, in each country, the variable money of the country making the quotation or originating the operation for the whole chief money of account of the country with which the exchange is to be made. This is now practised between the British Isles and Mauritius. In the British Isles it is pence per rupee. In Mauritius it is rupees, &c., per sovereign.

The further development of the writer's system by means of the exclusive use of weights of pure metal on issue from mints in the world's chief moneys of account, and the daily ratio between gold and silver for the purpose of determining fixed and absolute pars of exchange, facilitates the comprehension of the subject of money in a very simple and satisfactory manner. It should confirm the opinion of the absolute necessity, in the present state of the knowledge of money, of limiting the definition of it to the standard substance appropriated to currency purposes. This definition rooted in the mind throws a flood of light over the two great perplexities of money as at present understood, viz. the quantity theory and the value theory.

It cannot be doubted that, even among expert financiers, exchange bankers, bullion coin and exchange dealers, very few comprehend the nature, power, and limitations of money. When the subject is better understood, and the intelligence of mankind has been brought to bear upon the two present methods of quoting and working the foreign and colonial exchanges, there is reason to expect that the system which prevails between countries which possess the same weight of metal as the chief money of account in each will be practised, to the exclusion of that which is neither scientific, simple, nor correct. Should this be brought about, the quotations would then be, a premium or a discount in the country quoting on a fixed par or an absolute par of the whole sum to be exchanged.

The formulæ of the sums would be the following. It is desired to know—

I. What is the French monetary sign for the mint-issue weight of pure gold indicated by the British monetary sign £385 7*s.* 10*d.*?

$$\frac{113{\cdot}001605 \text{ mint-issue weight of a sovereign in troy grains}}{4{\cdot}480359 \text{ mint-issue weight of a franc in troy grains}}$$

of £385·3916. Answer, 9720·174 francs.

II. What is the British monetary sign for the mint-issue

weight of pure gold indicated by the French monetary sign 9720·174 fr.?

$\frac{4{\cdot}480359}{113{\cdot}001605}$ of 9720·174. Answer, £385 7*s.* 10*d.*

III. What is the Indian monetary sign for the mint-issue weight of pure silver indicated by the Japanese monetary sign 8564 yens 34 sens?

$\frac{374{\cdot}4 \text{ mint-issue weight of a yen in troy grains}}{165 \text{ mint-issue weight of a rupee in troy grains}}$ of 8564·34 yens. Answer, ₹19,433 5 a. 2·7 p.

IV. What is the Japanese monetary sign for the mint-issue weight of pure silver indicated by the Indian monetary sign ₹19,433 5 a. 2·7 p.?

$\frac{165}{374{\cdot}4}$ of ₹19,433·3266. Answer, 8564·34 yens.

V. What is the British monetary sign for the mint-issue weight of pure gold equivalent in value to the mint-issue weight of pure silver indicated by the Indian monetary sign ₹12,450 7 a. 8 p. at a ratio between the metals of one part of gold to 24·8156 parts of silver?

$\frac{165 \div 24{\cdot}8156}{113{\cdot}001605}$ of ₹12,450·4791. Answer, £732 11*s.* 8¼*d.*

VI. What is the Indian monetary sign for the mint-issue weight of pure silver equivalent in value to the mint-issue weight of pure gold indicated by the British monetary sign £732 11*s.* 8¼*d.*, at a ratio between the metals of 24·8156 parts of silver to one part of gold?

$\frac{113{\cdot}001605}{165 \div 24{\cdot}8156}$ of £732·5546. Answer, ₹12,450 7 a. 8 p.

A close approximation to these answers would be reached by using the figures to the second decimal place only.

The following were the rates of exchange in March, 1893, between London and the chief monetary systems of the world :—

RATES OF EXCHANGE, MARCH, 1893.

London.

—	Par.	Sight.	—
Constantinople	110.27·56 pi.	—	3 m.s. 110·62
Alexandria ...	98.4·52 „	97⅞	—
Lisbon * ...	53·278 dol.	42½	—
Monte Video...	51·004 „	—	3 m·s. 52*d.* gold
New York ...	49·316 „	49⅛ to ¼	2 m.s. 48⅞
Buenos Ayres	47·578 „	—	3 m.s. 48⅛ gold
Havanna ...	45·666 „	—	2 m.s. 20¼ to ½ % prem.
Santiago ...	44·985 „	—	—
St. Petersburg (gold) ...	38·059 „	25¼ to ⅜	3 m.s. 94·70 & 25 dol.
Rio Janeiro ...	26·394 „	—	„ 12⅞ to 13¼
Vienna (gold)	12·0088 fr.	12·115 to 12·12½	„ 12·22 to 12·22½
Amsterdam ...	12·1072 „	12·09 „ 12·1¾	„ 12·3⅛
Copenhagen ...	18·1595 „	18·14 „ 18·16	„ 18·29
Berlin ...	20·4292 „	20·43⅓ „ 20·44	„ 20·54
Paris	25·22155 „	25·16 „ 25·17	„ 25·32½

RATES OF EXCHANGE, MARCH, 1893.

London.

—	Par at 37⅞*d.* per ounce.	At sight.	Four months' sight.
Shanghae	43·76*d.*	44⅜*d.*	—
Hongkong	32·16*d.*	32¼*d.*	—
Mexico	32·16*d.*	31⅝*d.*	—
Yokohama	31·59*d.*	—	33¼*d.*
Manila	30·75*d.*	—	35⅜*d.*
Lima	29·61*d.*	—	—
Tripoli	26·71*d.*	—	—
Bangkok	17·59*d.*	—	—
Bombay	14·06*d.*	14⅝*d.*	—
Teheran	5·37*d.*	—	—

TABLE X.

Mint-issue weight of pure gold and pure silver in the world's immediate past, present, and prospective chief moneys of account. Col. I.—Name of money of account and weight in decigrams. Col. II.—Name and weight indicated by tokens. Col. III.—Name and weight indicated by a minute portion of each chief money of account. Col. IV.—Monetary signs for 1 decigram. Col. V.—Constants for ascertaining the ratio between gold and silver.

GOLD.

	Col. I.		Col. II.			Col. III.			Col. IV.		Col. V.	
I. Egyptian	pound	74·375	piastre	1/100	·744	ochr-el-guerches	1/16	·0046	13·44	ochr-el-guerches	629·24936	ochr-el-guerches
			ochr	1/10000	·074							
II. British	,,	73·224	shilling	2/20	3·66	penny	1/64	·0047	3·28	pence	942·9955	pence
			penny	2/240	·305							
III. Turkish	,,	66·146	piastre	1/100	·66	para	1/4	·0041	60·47	paras	4841·6490	piastres
			para	1/10000	·016							
IV. Portuguese ...	milreis	16·257	testoon	1/100	·16	rei	1/2	·0041	61·51	reis	615·11646	milreis
			rei	1/10000	·016							
V. Uruguayan ...	peso	15·56	centesimo	1/100	·155	centavo	1/32	·0050	6·43	centesimos	642·61198	pesos
VI. United States N.A.	dollar	15·046	cent	1/100	·15	cent	,,	·0047	6·65	cents	2067·1834	cents
VII. Argentine ...	peso	14·516	centavo	1/100	·145	centavo	,,	·0045	6·89	centavos	688·8888	pesos
VIII. Brazilian	milrei	8·218	10 reis	1/100	·082	rei	1/2	·0041	121·69	reis	1216·8733	milreis
			1 rei	1/10000	·0082							
IX. Russian	rouble old	11·61	1 kopeck	1/100	·116	kopeck	1/16	·00725	8·61	kopecks	367·367	kopecks
,, ...	,, new	7·74	,,	,,	·077	,,	,,	·0048	12·92	,,	551·05095	,,
X. Japanese	yen old	15·	sen	,,	·15	sen	,,	·00936	6·66	sens	250·	yens
	,, new	7·5	,,	,,	·075	,,	,,	·00468	13·33	,,	500·	yens

XI. Dutch	guilder	6·05	cent	,,	·0605	cent	,,	·00378	16·53	cents	16·53·4391	guilders
XII. Chilian	peso old	13·72	centavo	,,	·137	centavo	,,	·0085	7·28	centavos	728·454	pesos
	condor new	5·49	,,	,,	·0549	,,	,,	·00343	18·21	,,	1820·9026	condors
XIII. British India ...	rupee old	7·127	anna $\frac{1}{16}$	·594	pie $\frac{1}{192}$	·037	pie	$\frac{1}{8}$	·0046	2·24	annas	261·827	annas
	,, new	4·88	,, ,,	·305	,, ,,	·025	,,	$\frac{1}{8}$	·0032	3·28	,,	382·29546	,,
XIV. Scandinavian ...	crown	4·03	ore		$\frac{1}{100}$	·0403	ore	,,	·0050	24·8	ores	1240·	crowns
XV. German	mark	3·584	pfennig		,,	·0358	pfennig	,,	·00448	27·9	pfennigs	1395·00213	marks
XVI. Austria-Hungarian	florin old	7·258	kreutzer		,,	·0725	kreutzer	,,	·0091	13·77	kreutzers	688·895	crowns
	crown new	3·048	heller		,,	·0304	heller	,,	·0038	32·8	hellers	1640·	,,
XVII. French	franc	2·903	centime		,,	·02903	centime	,,	·0036	34·34	centimes	3444·4444	francs

SILVER.

I. Chinese	tael	334·62	cash		$\frac{1}{1000}$	3·346			2·99	cash	1·1206023	tael
			,,		$\frac{1}{10000}$	·334	cash	$\frac{1}{8}$ ·042				
II. Trade	dollar	244·94	cent		$\frac{1}{100}$	2·449	cent	$\frac{1}{25}$ ·038	·41	cents	40·826	dollars trade
III. Mexican	peso	244·41	centavo		,,	2·444	centavo	,, ·038	·41	centavos	40·914994	pesos
IV. Japanese	yen	242·61	sen		,,	2·426	sen	,, ·0379	·41	sen	15·457090	yens
V. Javanese	rix dollar	236·25	cent		$\frac{1}{240}$	·945			·42	cent	41·328442	rix dollars
VI. Philippines ...	dollar	233·64	cent		$\frac{1}{100}$	2·336	cent	,, ·0365	·43	,,	42·800906	dollars
VII. Columbian U.S....	sol	225·00	centesimo		,,	2·25	centesimo	,, ·035	·44	centesimo	44·444444	sols
VIII. Bolivian	boliviano	202·50	,,		,,	2·025	,,	,, ·0316	·49	centesimo	49·382716	bolianos
IX. Russian	rouble	179·96	kopeck		,,	1·80	kopeck	$\frac{1}{18}$ ·056	·55	kopecks	23·704185	kopecks
X. Siamese	tical	146·64	phai-nung		$\frac{1}{32}$	4·58	solot	,, ·036	·22	phai-nung	1·0428306	ticals
XI. Austria-Hungarian	florin	111·11	kreutzer		$\frac{1}{100}$	1·11	kreutzer	,, ·0347	·9	kreutzers	45·	florins
XII. British Indian ...	rupee	106·92	pie		$\frac{1}{192}$	·556	pie	$\frac{1}{18}$ ·0348	1·8	pies	1·0909090	rupee
XIII. Persian	kran	41·43	shahis		$\frac{1}{24}$	2·07						
,, ...			dinar		$\frac{1}{10000}$	·0414	dinar	$\frac{1}{10000}$ ·0414	·48	shahis	1·1111111	kran

CHAPTER VII.

Foreign and colonial exchanges of intermediaries—"Kelly's Universal Cambist" (1811)—Comments upon his concrete case of the purchase of a parcel of wheat in Dantzic, and the cost of the same in London, illustrating the necessary combined action of prices, and the interchange of intermediaries—The effects of one standard substance and measure of value, one table of weights, and the abolition of monetary signs for the interchanges of the whole world—The working of intermediaries in connection with the prices of other things—The exchanges of the present seven intermediaries upon a scientific basis—Concrete cases—Fixed Pars—Absolute Pars—Gold Constants—Deviations from metal equivalents—The making of bills of exchange of intermediaries—Arbitration of the exchanges of intermediaries—Suggestions for the consideration of the students of the mechanism of the interchanges of things, and the quality and functions of money.

THE terms "prices" and "the foreign and colonial exchanges" indicate the employment of intermediaries in the interchanges of things between man and man, and between community and community. Barter is the interchange of one thing for another thing without the use of an intermediary. The use of counters would constitute price and rate of exchange. We have seen that there are currencies partaking of the nature of counters. Counters have no cost value in any relation whatever to the things which they might be the instruments of interchanging; they therefore could not be made to act as a metal standard substance does. We have seen that the international and intercolonial interchange of one thing for another thing, when society has passed the age of barter, necessitates the employment of four prices and two rates of exchanges of intermediaries, see page 15. It would be the same if the world had only one scientific effective

metal standard intermediary substance, and only one weight table, instead of seven intermediaries and nine weight-tables. If a shipment of a thing in country A for sale in country B proceeds simultaneously with the shipment of a different thing in country B for sale in country A, the necessary rate of the exchange of the intermediaries both in A and B would be pretty much the same ; but if the shipments were made at different periods there might be a very heavy alteration, unless both the countries A and B possessed either an effective gold standard currency or an effective silver standard currency. I have mentioned elsewhere that in any country which possesses an effective metal monetary system, price is a definite weight of the standard substance, whether the price of the thing be a halfpenny or £1000. It is a fact that a weight of gold indicated by each of the prices is as good as weighed out in exchange for the things. The following instance proves the truth of this statement: Here is a silver teapot in a London shop priced under a monetary sign at 385 decigrams of pure gold. In a Paris shop is a precisely similar one priced under a different monetary sign at 398 decigrams of pure gold. This is 3·3 per cent. more than can be obtained in London. The charges of transmission and the exchange would permit of the teapot being sold in Paris under freedom of trade.

In the standard work, "Kelly's Universal Cambist" (1811) there are chain rule instances given of shipments embracing the exchange of the intermediaries. This is one: Example V. page 136, "The last of wheat at Dantzic cost 620 florins, and it is computed that it might be sold in London for 90*s.* per quarter. Dantzic may draw on Hamburgh for the amount of 166 goschen per rix-dollar banco, and the exchange of Hamburgh on London is thirty-four shillings and sixpence. What would be the profit or loss on the importation of such wheat, reckoning the last of Dantzic equals 10$\frac{3}{4}$ English quarters, that the charges at Dantzic will amount to 12$\frac{1}{2}$ per cent., and the freight inward and all the charges to be paid in London, including commission to the Hamburgh correspondent, will be 20 per cent ?

		1 English quarter
English quarters	$10\frac{3}{4}$ =	1 last of Dantzic
last	1 =	620 florins
florins	100 =	$112\frac{1}{2}$ pm. with charges
florin	1 =	30 goschen
goschen	166 =	1 rixdollar Hamburgh banco
rixdollar	1 =	8 shillings Flemish
shillings	$34\frac{1}{2}$ =	1 pound
pounds	100 =	120 pounds with charges
pound	1 =	20 shillings.

This worked out gives $65\frac{1}{4}$ shillings per quarter of wheat. It will be observed that of these nine equivalents four are used to arrive at the conversion of one intermediary into the equivalent of the other intermediary, florins into shillings. The object of this calculation is to determine the cost price in British money in London of wheat purchased in Dantzic with florins. The four great factors are two prices, one in Dantzic, one in London, rates of exchange of the intermediaries, and percentage charges.

The Working of Intermediaries in connection with the Prices of other things.—It is only a few years since it was commonly said by an authority in this country, "That as for currency and the exchanges, next to love and religion, they fill the lunatic asylums," repeating a saying of Sydney Smith's. The bold manner in which the delusive and dangerous theory of bimetallism has been supported by speakers and writers who do not manifest the slightest knowledge of metallism, at all events, evidences crass ignorance of the first principles of money. Since perplexity does arise from the use of intermediaries of different characters and diverse nomenclatures, it is necessary to treat the subject fully. There is a game of our childhood called "the game of contrary." Many with one hand holding a handkerchief are told, "When I say hold fast, let go; and when I say let go, hold fast; therefore I say hold fast," and the child has to learn to act differently to the directions contained in the last part of the instruction. We shall see it is the same with reference to the exchanges of intermediaries. I have stated that the scientific method of working the exchanges for the whole world is by premium and discount upon the intermediary of

the country originating the transaction. It is the system practised between countries possessing the same standard money of account, as between France and Belgium, the British Isles and Australasia. It would be the same if the whole world had only one scientific automatic monetary system with no other nomenclature than weight. It is quite clear that if the whole world had a metric pure gold system, prices and rates of exchange would be simply a greater or less weight of gold. Both would be recognized and understood by a child at a glance. If the world possessed the great desideratum of one intermediary only, the following would be the action of the intermediary in international interchanges of things: A shipment of a pound of tea is made in London to Rosario; it cost 4·3 decigrams; the shipper sells his bill of exchange at 1 per cent. premium, there being a demand for bills; having obtained 1 per cent. on the cost of the tea, the cost price in Rosario will be about 1 per cent. less. If the demand for bills necessitates his selling at a discount, the equivalent premium must be added to the cost of the tea in Rosario. This is the manner in which the exchange of intermediaries at present work between scientific automatic monetary systems. The premium immediately operates as a premium, and the discount as a discount, though an adjustment in the reverse order has to be made to the cost in Rosario. We will now take the lb. of tea at the same cost, and with the aid of Table X. on page 106 show the necessity of perceiving that a premium immediately becomes a discount, and a discount a premium. This is so because the quotation of the money of a country originating the operation for a different intermediary is used as a divisor. Assume that Rosario has an effective gold monetary system. In column II. against British ·305 will be found the monetary sign for which is one penny. Against Argentine will be found ·145, the monetary sign for which is one centavo. We are about to use monetary signs after the present manner of the world. The invoice will be made up of pounds or pence in the British Isles, and in pesos or centavos in the Argentine Republic. A pound of tea costs 4·3 decigrams of

gold, the monetary sign for one decigram being 3·28 pence; 4·3 × 3·28 = 14 pence, say the exchange of the British for the Argentine money is at a premium. The invoice or bill of parcel is for 5 lbs. of tea, cost 70 pence. The fixed par of exchange between the British Isles and the Argentine Republic is by weight, 14·52 decigrams = 47·58 pence for one peso. The invoice at par amounts to 1·471 peso. The shipper of the tea can sell his bill upon Rosario at the rate of 48 pence per peso. 1·471 × 48 = 70·608 pence. Since at this rate of exchange the shipper receives more than the amount he has paid for the tea by ·86 per cent., this percentage must be deducted from the cost of the tea represented by the bill in Rosario payable in pesos. This is an instance of a premium acting as a discount requiring adjustment at the place of sale of the goods shipped. The case of a discount acting as a premium is thus. The sale of the bill at ·86 per cent. off the invoice of the tea at par leaves 1·345 peso. A sum equivalent to the ·126 discount must be added to the amount of the bill payable in Rosario to arrive at the cost of the tea in pesos there. This is an instance of a discount acting as a premium requiring adjustment at the place of the sale of the goods shipped. There are two modes of converting one intermediary into another, one by division, the other by multiplication. Convert £3 into francs. One franc indicates the same weight of pure gold as 9·515 pence. There are 720 pence in £3; 720 ÷ 9·5156 = f. 75.66½ centimes, or £3 × 25·22115 francs = f. 75.66½ centimes. The same weight of gold is indicated by a pound sterling and f. 25·22·15 centimes.

We will now assume that the whole world possesses one scientific automatic gold standard, the metric weight table, and has thrown off the additional monetary signs. The object being simply to show the action of price and the exchange of the intermediary as essential concomitants in the international and intercolonial interchanges of things, charges will be left out. The prices shall be a variable number of decigrams of pure gold. We will say that country A ships a weight of tea equivalent to one British lb., and has paid

$4\frac{1}{4}$ decigrams for it; the rate of exchange is one-half per cent. against the shipper. What is the cost of the lb. in London? It is manifestly 4·25 decigrams of gold $+\frac{1}{2}\%=4{\cdot}27$ decigrams of gold: Answer. The use of one intermediary for the whole world, say gold, would confine the exchanges within a very small percentage fluctuation, as is at present experienced between the effective gold monetary systems of the world.

We will now take instances of shipments by a country possessing an effective silver monetary system to a country possessing an effective gold monetary system at two different periods. One when the ratio of silver to gold is 15·7 to 1, and the other when it is at 34 of silver to 1 of gold.

II. In 1873 a weight of tea equivalent to 1 lb. cost 66·72 decigrams of pure silver; the ratio of silver to gold was 15·7 to 1; the exchange of the silver intermediary for the gold intermediary is $\frac{1}{2}$ per cent. against the shipper. What is the cost of the pound of tea in a gold standard country? The sum is $\frac{66{\cdot}72+\frac{1}{2}\%}{15{\cdot}7}=4{\cdot}27$ decigrams of gold: Ans.

III. In 1897 at the same price, and at the ratio of 34 parts of silver to 1 part of gold and $\frac{1}{2}$ per cent. added, what is the cost price in a gold standard country? The sum is $\frac{66{\cdot}72+\frac{1}{2}\%}{34}=1{\cdot}97$ decigrams of gold: Ans.

IV. On the same terms as the last instance, excepting that the intermediary is a silver-cum-counter charge, one upon which legislation has conferred a bounty of 40 per cent., what is the price of the pound of tea in a gold standard country? The sum is $\frac{66{\cdot}72+40\%+\frac{1}{2}\%}{34}=2{\cdot}76$ decigrams: Ans.

V. Assume that the shipping price of tea has risen 20 per cent., and take the same terms as in instance IV., and we have $\frac{66{\cdot}72+20\%+40\%+\frac{1}{2}\%}{34}=3{\cdot}40$ decigrams: Ans.

Comparing the cost of the tea in a gold standard country

in 1897, instance III. with instance II., it was 54 per cent. less than in 1873. With a silver-cum-counter charge currency, by which a fictitious value of 40 per cent. was conferred on silver as an intermediary, the cost of the tea in 1897 is 35 per cent. less than in 1873. With an assumed rise of 20 per cent. in the price of tea at the port of shipment compared with the price in 1873, the other conditions the same as in instance IV., the cost price in a gold standard country is 20 per cent. less.

In the foregoing we have an instance of the combined operation of price and the exchange of intermediaries between two countries, one possessing an automatic pure gold standard, and the other a silver-cum-counter charge currency at different ratios between gold and silver.

A pound of tea shall be used in illustrating the effect of the combined operation of prices and the exchange of the intermediaries between the British Isles and other parts of the world, using the other currencies which have been described.

Automatic Gold for Gold.—Shipment of tea in London for New York. Since there is no coinage charge in the monetary system of the U.S.A., there can be no disturbing action from this cause. The standard of the U.S.A. is automatic pure gold. The price of the pound of tea is 4·3 decigrams, or 14 pence. The rate of exchange is $\frac{1}{2}$ per cent. premium, or 49·56 pence per dollar. A cent is the monetary sign for ·1505 of a decigram of gold. The sum is $\frac{1 \times 4{\cdot}3 + \frac{1}{2}\%}{{\cdot}1505}$ = 28·7 cents: Ans. The equivalent discount to the premium would be adjusted in New York.

Automatic Gold for Gold-cum-coinage Charge.—Tea to Australia at the same price. The coinage charge in Australia is 1 per cent. Should the state of the markets in London and Australia necessitate the shipment of bullion to the latter country, the exchange would be in favour of England to the extent of the coinage charge. The exchange therefore might be $1\frac{3}{4}$ per cent. premium. The sum is 4·3 decigrams + $1\frac{3}{4}\%$ = 4·375 decigrams or 14·34 pence: Ans. The equivalent discount to the premium would be adjusted in Australia.

Automatic Silver for Automatic Silver.—China and Singapore both possess automatic silver currencies. Assume the shipment of a pound of tea from China to Singapore. Cost of 1 lb. of tea, 132 decigrams of silver or 394 cash. The rate of exchange is, say, $1\frac{1}{2}$ per cent. premium. The standard in Singapore might be taken as the Mexican dollar, or the yen, or the British dollar. The Mexican dollar would make the cost per pound as follows, the cent indicating 2·444 decigrams of silver. The sum is $\frac{132 + 1\frac{1}{2}\%}{2{\cdot}444} = 54{\cdot}8$ cents: Ans. The equivalent discount to the premium would be adjusted in Singapore.

Automatic Silver for Silver-cum-coinage Charge.—Take China for the first-named, and Mexico for the second. In this latter country the coinage charge is 2 per cent. Cost of tea the same as in the last instance. Assume that Mexico has to import silver bullion; the exchange would include the coinage charge. Say, therefore, that the China rate is 3 per cent. premium. The sum is $\frac{132 + 3\%}{2{\cdot}444} = 55{\cdot}6$ centesimos: Ans. The equivalent discount to the premium would be adjusted in Mexico.

Automatic Gold for Inconvertible Paper based on Gold.—Take the British Isles for the former and the Argentine Republic for the latter at 185 per cent. premium in paper for gold. This premium equals 64·9 discount. The sum is $\frac{185 \times 100}{285} = 64{\cdot}9$. Say that there is a supply of bills in excess of demand, and therefore bills at this ratio are in demand at $1\frac{1}{2}$ per cent. discount, what is the cost of 1 lb. of tea in Rosario? ·145 of a decigram is the weight of gold indicated by a centavo. The sum is $\frac{4{\cdot}3 - 64{\cdot}9\% - 1\frac{1}{2}\%}{{\cdot}145} = 10{\cdot}6$ centavos: Ans. The premium equivalent to $1\frac{1}{2}$ per cent. discount must be adjusted in Rosario.

Automatic Silver for Inconvertible Paper based on Silver.—The currencies of South and Central America, with the exception of Venezuela, Bolivia, and those parts in the

possession of the European powers, consist of inconvertible paper, many of them before and for some years after 1873 based upon silver. These countries nominally had what is called the double standard. One by one they are becoming nominally on a gold standard without any gold. It may be fairly assumed that one or more of the Central American States has a currency consisting of inconvertible paper based upon silver. For the sake of an example, let it be supposed that there is such a State, and that its chief silver money of account is at a premium in paper of 150 per cent. We will take China as an instance of automatic silver, and Guatemala as an instance of inconvertible paper based on silver. A premium of 150 per cent. equals a discount of 60 per cent. Assume that the supply of bills is greater than the demand, and that the rate in China upon Guatemala is at 2 per cent. discount. The weight indicated by a centesimo in Guatemala is 2·25 decigrams of silver. The price of the tea in China is 132 decigrams of silver. The sum is $\frac{132 - 60\,\% - 2\,\%}{2{\cdot}25}$ = 23 centesimos: Ans. The premium equivalent to 2 per cent. discount must be adjusted in Guatemala.

The teaching and practice for children should commence with the assumption that the world has only one scientific gold intermediary, the abolition of monetary signs, and the use of one weight measure for the whole world, the metric being undoubtedly the best. By these means an intelligent child could be easily taught prices, and the exchanges of the one intermediary. Both prices and the exchanges would be so much more or so much less weight of pure gold in a percentage form. This thoroughly understood and practised, the next step would be to master the exchanges of seven intermediaries, by means of weights of pure gold and pure silver, with percentage deviations from fixed and absolute pars. It has been seen that these seven intermediaries present forty-nine different exchanges. But when one is mastered there should be no difficulty in working them all.

The table preceding this chapter in its Cols. I., II., IV., and V. contains all the information which is requisite to

enable the sailor, soldier and traveller to ascertain the closely approximate equivalent value of the world's seven monetary and currency intermediaries; the tokens for them and the paper promises to pay them everywhere.

Assume that the world possesses 17 effective gold and 8 effective silver monetary systems. Then with the help of it, each for himself, without the assistance of Whittaker or any other directory, could discover at once on the only true principle, that of weights of pure gold and pure silver, the fixed and absolute pars of exchange or equivalents between the 25 metal monetary systems. Now a large proportion of the people of the world effect their interchanges of things by means of rotten currency systems based on either gold or silver, the weights of which are presented in the table, and silver-cum-counter charge currencies. To find out the rate of interchange of these, percentage on the weights given has to be used to determine the weight of gold or silver indicated by the constantly fluctuating rate of eachange.

I. **Fixed Pars.**—What is it between the United Kingdom and France? The weight of pure gold in the franc divided by the weight of gold indicated by the British penny, gives the answer. The sum is $2{\cdot}903 \div {\cdot}305 = 9{\cdot}5$ pence. What is it between France and the United Kingdom? The sovereign must be divided by the franc. The sum is $73{\cdot}224 \div 2{\cdot}903 =$ fr. 25 22·15 centimes. How many centimes are equivalent to one shilling? The sum is $3{\cdot}66 \div {\cdot}02903 = 126$ centimes, or 1 franc 26 centimes. It is unnecessary to give instances of fixed silver pars.

II. **Absolute Pars.**—At the ratio of 34·13 parts of silver to 1 part of gold, what is the Mexican equivalent to one franc? The decigrams of gold in the franc, multiplied by the ratio and divided by the weight indicated by the centavo, gives the answer. The sum is $\frac{2{\cdot}903 \times 34{\cdot}13}{2{\cdot}444} = 40{\cdot}54$ centavos. At the same ratio, what is the French gold monetary equivalent to one Mexican peso? The decigrams of silver in the peso must be divided by the ratio, and the product by the

decigrams of gold in the franc. Thus $\frac{244{\cdot}41 \div 34{\cdot}13}{2{\cdot}903} = 2$ francs 45 centimes.

III. Gold Constants.—The object with which these are given, is to determine with ease the ratio of silver to one of gold upon the variable gold price of silver in gold monetary systems; and between gold and silver in silver monetary systems on the variable silver price of gold. The gold constants in gold monetary systems must be divided by the gold price of silver of the day in the monetary sign attached to the constant, and the result will be the ratio. The silver constant in silver monetary systems must be used as a divisor of the silver price of gold in the monetary sign attached to the constant, and the result will be the ratio. As an instance of the use of the gold constant: say the price of silver in the British Isles is $27\frac{5}{8}$ pence per ounce, the constant 942·995 pence against Britain gives the ratio 34·13 of silver to 1 of gold. The sum is $942{\cdot}995 \div 27{\cdot}625 = 34{\cdot}13$. As an instance of the use of the silver constant, the silver price of a kilogram of gold in Mexico is 1396·40 pesos. The constant attached to Mexico is 40·9015 pesos. The sum is $1396{\cdot}4 \div 40{\cdot}9015 = 34{\cdot}13$ the ratio.

IV. Deviations from Metal Equivalents.—The world has experienced within a quarter of a century an alteration in the ratio of silver to gold from, say, 15·75 parts of silver to 1 of gold to 34 parts of silver to 1 of gold—a rise in the silver price of gold of 122 per cent. and a fall in the gold price of silver of 54 per cent. But in the same period there have been greater changes in inconvertible paper, even as much as 400 per cent. These three columns are equally useful in exposing the component parts of the five other intermediaries. All the seven have as their basis either a definite weight of gold or a definite weight of silver. Let us use these three columns to expose what is meant by a few quotations of the rates of exchange culled from the *Times* newspaper, the ratio between the metals being 34·21 parts of silver to 1 part of gold. On the 23rd and 24th June, 1897, under *Exchanges on London*, there are sixteen quotations. Eight of these are in

the moneys of foreign countries, and seven are in British pence. Under *Course of exchange*, by which is meant the rates in London upon other countries, there are quotations on twelve different countries, counting Denmark, Sweden, and Norway as three. There are only three quotations in pence, one of them being on Russia, which country responds in roubles for ten pounds. The remaining quotations are in the moneys of the foreign countries. All quotations in this country should be in the money of this country for both foreign and colonial moneys. The present system is unscientific and misleading, and should be abolished. There are quotations for sight bills and three months' sight bills at a difference of 1·44 per cent. This shows at the rate of $5\frac{3}{4}$ per cent. per annum, less risk and commission. There is a difference between Paris and Brussels cheques of 1·5 per mille in favour of Paris. There is a difference between Paris and Italian cheques of $4\frac{1}{4}$ per cent. against Italy. This is not accounted for by greater distance or worse credit, but results from the currency of Italy being inconvertible paper based on gold. The sight rate on Madrid is given at 32 ps. 50, this means $32\frac{1}{2}$ pesetas; a peseta contains the same weight of gold as the franc. The monetary sign $32\frac{1}{2}$ pesetas, divided by the Spanish monetary sign for one decigram of pure gold, reveals the weight of pure gold indicated by the quotation. 100 centimos make one peseta, and the monetary sign for one decigram of pure gold is 34·44 centimos. The sum therefore is $\frac{3250}{34{\cdot}44} = 94{\cdot}37$ decigrams of pure gold. The Spanish fixed par of exchange with London gold for gold is 73·22 decigrams of gold. This shows that the quotation 32·5 pesetas is in inconvertible paper based on gold, and that the gold is at 29 per cent. premium in paper. Buenos Aires on London is quoted at 16·14 pence. This quotation divided by the British monetary sign for one decigram of gold, gives the weight of gold indicated by the quotation. The sum is $\frac{16{\cdot}14}{3{\cdot}28} = 4{\cdot}93$ decigrams. The table shows that the weight of the Argentine peso is 14·516 decigrams; this shows that

the intermediary in use is inconvertible paper based on gold : that the paper is at a discount of 66 per cent., or in other words, gold is at a premium of 194 per cent. in the inconvertible paper intermediary. The London rate on Calcutta for a telegraphic transfer is $14\frac{25}{32}$ pence, while the ratio between the metals is 34·21 parts of silver to 1 part of gold, the price of silver of the day being $27\frac{9}{16}$ pence per 444 troy grains. What intermediary is indicated by $14\frac{25}{32}$ pence? The decigrams of gold indicated by 14·78125 pence is 4·51 decigrams. The sum is $\frac{14{\cdot}78125}{3{\cdot}28} = 4{\cdot}51$. The rupee is 100·92 decigrams of silver; the equivalent in gold at 34·21 of silver to 1 of gold is $\frac{106{\cdot}92}{34{\cdot}21} = 3{\cdot}12$ decigrams; this compared with 4·51 decigrams yielded by the quotation of $14\frac{25}{32}$ pence, shows that the quotation is for a silver-cum-counter charge intermediary bearing a fictitious value of $44\frac{1}{2}$ per cent.

From these few instances it should be clearly seen that this table is not only of use for determining equivalents between effective monetary systems, but also the equivalents between the seven present diverse intermediaries.

On page 5 of the writer's "Guide to the Exchanges for the use of Sailors and Travellers," there are directions for ascertaining what is meant by newspaper quotations of rates of exchange.

THE MAKING OF BILLS OF EXCHANGE OF INTERMEDIARIES.

For Finance operations round sums for the same money of account or for the moneys of account of other countries wherein the chief moneys of account differ, are drawn. If the currency is the same as that in which the bill is drawn, the quotation would be a premium or a discount of so much per cent. or per mille on par. If the currency is different, the quotation would be by premium or discount expressed either in the money of account of the country in which the quotation is made for the chief money of account of the country upon which the bill is drawn, or in the money of account of the country on which the bill is drawn.

INSTANCES IN THE BRITISH ISLES.

I. £1000 on Australia.—Quotation either a premium or discount per cent. or per mille.

II. Frs. 25,221·5 on France.—Quotations francs for a pound. This is used as a divisor of francs to ascertain the equivalent in sterling. Say the quotation is frs. 25·10 c. per £. The same weight of pure gold is indicated in England by a £ and frs. 25·2215 in France. Frs. 25·10 per £ shows a quotation of 4·8 per mille discount. But frs. 25·10 used as a divisor of frs. 25,221·5 = £1004·8 or £1004 16*s.* Frs. 25,221·5 at par is £1000 only. Say that the exchange is quoted frs. 25·30 c. per £, then frs. 25,221·5 ÷ 25·30 = 3·12 per mille premium.

III. Frs. 25,221·5 on France.—Suppose the quotation to be in pence. The British par with one franc is expressed in 9·516 pence. Say the exchange is 9·560 pence = £1004 13*s.* 2*d.* This is a premium of 4·6 per mille. Say the exchange at 9·1472 pence = £995 8*s.* 2*d.* This is a discount of 4·6 per mille.

This last is on the same principle which governs the working of the exchange between countries the chief moneys of account in which consist of the same weight of pure metal, whether that metal be gold or silver.

The question to be asked is, Is this quotation showing a premium to be used as a multiplier or a divisor? If it is to be used as a divisor, the premium becomes a discount, since the seller of the bill obtains less than par for the amount of the bill. If he sells at a discount, the divisor being less, he would obtain more than the amount of the bill.

Each invoice or bill of parcel of things prepared in a country for shipment to any other country must be converted into the money or currency of the country to which the things are sent. This must be so because they have to be sold for the currency of that country. If all prices and rates of exchange were simply in weights of gold and silver with percentage deviations from fixed pars or absolute pars, the foreign an colonial exchanges would be of a much more simple character. But whether monetary signs were abolished

or retained, the weight of the pure metal or the monetary sign for the same in the country making the shipment should be used as the divisor of the invoice to bring it into the currency of the foreign or colonial country to which the goods are sent. Quotations of the exchanges of intermediaries made in weights, or monetary or currency signs, always resolve themselves into deviations from par, more or less in a percentage or per mille form. In a quotation wherein a coinage charge, a counter charge, a transmission of metal charge, or a commission charge, form a part, the rate scientifically used would be a premium or discount on the currency of the country wherein the exchange operation commences. It is the same with regard to inconvertible paper. The quotation expressed in percentage premium is always for either a definite weight of pure gold or a definite weight of pure silver. Take, for instance, 186 per cent. premium in Argentina for the weight of pure gold in the peso payable in the British Isles. The meaning of this is, 286 paper pesos for the weight of gold in the British Isles equivalent to 100 pesos or 1451·6 decigrams of gold. The rate for an inferior bill of exchange compared with that for a superior bill of exchange, would be at a discount. The rate for a bill of exchange for longer usance than sight compared with the rate for a bill at sight would be at a discount, determined by the interest charged by the buyer from the seller of the bill for the use of the money for the additional time. From this it will be seen that there may be discounts to set against premiums in arriving at the percentage or per mille quotation for a bill of exchange, more or less upon the fixed or absolute par.

ARBITRATION OF EXCHANGES OF INTERMEDIARIES.

This is commonly practised by means of a sum in chain rule form. The ordinary mode of sending one intermediary from a country to another country is by means of a bill of exchange direct. But there is an indirect mode of making the remittance which consists in operating through several

countries for the purpose of making a more advantageous remittance than the direct one would yield. Say that A in one country has to make a remittance to B in another country. The intermediary in both countries might be of the same nature or for one or other of the other six intermediaries. The rate is rarely, if ever, at the exact equivalence, or, in other words, at either a fixed or an absolute par. If the operator invests the intermediary of his country at a premium on par for the intermediary of the other country, he will obtain less than he paid in the country where the bill has to be paid. If he buys the bill at a discount upon par he will receive more in the country where the bill has to be paid. Here the rule of contrary operates. A discount becomes a premium and a premium a discount. For the seller of the bill the language conveys the right idea. If he sells at a premium he gets more than par. If he sells at a discount he gets less than par.

Say the operator invests £500 at a premium of 2 per cent., what is the amount of the bill he could buy upon Australia? The sum is $\frac{500 \times 100}{102} = £490{\cdot}196$: Ans. Two per cent. added to this sum brings it to £500. To the question, What percentage must be taken off so that when 3 per cent. be added 100 can be obtained?—the answer is: Multiply the percentage by 100 and divide the result by 100 plus the percentage. The sum is $\frac{2 \times 100}{102} = 1{\cdot}96078$ per cent.: Ans.

Say that the operator invests £500 at 2 per cent. discount, what is the amount of the bill he could buy upon Australia? The sum is $\frac{500 \times 100}{98} = £510{\cdot}20407$: Ans. Two per cent. deducted from this sum brings it to £500. To the question, What percentage must be added so that when 2 per cent. is taken off 100 can be obtained?—the answer is, Multiply the percentage by 100 and divide the result by 100 minus the percentage. The sum is $\frac{2 \times 100}{98} = 2{\cdot}030602$ per cent.: Ans.

Assume that the following countries possess effective gold monetary systems; that A in London has to remit to B in Italy a weight of gold = to X, and that the direct rate on Italy is $\frac{3}{4}$ per cent. premium for a sight bill. He desires to know whether he could not do better by a circuitous remittance through Holland, Russia, and France in bills on demand. He commences the operation by the purchase of a bill on Holland at $\frac{1}{4}$ per cent. discount, his firm in Holland purchases a bill on Russia $1\frac{1}{2}$ per cent. discount, his house in Russia purchases a bill on France at $\frac{1}{2}$ per cent. premium, his house in France purchases a bill in Italy at $\frac{1}{4}$ per cent. premium.

The chain rule sum should be:

London	X —	$\frac{1}{4}$ per cent.	discount	= X Holland.
Holland	X —	$1\frac{1}{2}$ „	„	= X Russia.
Russia	X +	$\frac{1}{2}$ „	premium	= X France.
France	X +	$\frac{1}{4}$ „	„	= X Italy.

Here we have $1\frac{3}{4}$ per cent. discount, which equals to the buyer 1·78117 per cent. premium, and $\frac{3}{4}$ per cent. premium, which equals to the buyer ·744444 per cent. discount. ·744444 deducted from 1·78117 leaves 1·03673 per cent. premium. We took the direct rate on Italy at $\frac{3}{4}$ per cent. premium, or at ·744444 per cent. discount to the buyer. This shows that by the circuitous exchanges the buyer has done better than the direct rate would have given him.

Very much greater discounts might be obtained by longer usance and inferior bills. But against the longer usance the interest on the use of money would be a set off to diminish the profit.

In this transaction the buyer or his agents have bought bills presumably at the same usance in four operations in as many different countries. In two countries he bought at the respective discounts of $\frac{1}{4}$ and $1\frac{1}{2}$ per cent., and in two countries at the respective premiums of $\frac{1}{4}$ and $\frac{1}{2}$ per cent. Deducting the premiums from the discounts, there is a gain of 1 per cent. Since the direct rate between London and Rome was $\frac{3}{4}$ per cent. premium, and the rate yielded by the

circuitous route is at a cost of $\frac{1}{4}$ per cent. less, the circuitous route is the best. It will be noticed that in this operation there have been no per mille charges for commission on the purchase of the bills on the Continent.

Sterling is represented by X in London: the same letter indicates the same weight of metal in Holland, Russia, France, and Italy.

The following is an example of the arbitration of exchange with five of the world's present intermediaries, viz. automatic gold, automatic silver, silver-cum-counter charge, inconvertible paper based on gold; inconvertible paper based on silver, in the following consecutive countries, Great Britain, China, British India, Argentina, Columbia, U.S. We will take the ratio between gold and silver at 40 parts of silver to 1 part of gold—the price in London, August 21st, 1897, 24 pence per 444 troy grains, the British equivalent to the rupee 9 pence, the rate of exchange between the British Isles and British India 15$\frac{1}{2}$ pence, showing a fictitious value imparted to the rupee, as an intermediary, of 72$\frac{1}{4}$ per cent. The premium in paper for gold in Argentina is, say, 180 per cent. The premium in paper for silver in Columbia, U.S., is, say, 150 per cent. The equivalents to sterling in China, British India, Argentina, and Columbia, present very different ratios. Between China and the British Isles it depends upon the ratio between gold and silver alone. Between the British Isles and British India it depends upon the ratio between gold and silver as to the increase or diminution of the purchasing power of other intermediaries by the silver-cum-counter charge intermediary, besides the effect of a 5 per cent. import duty upon silver into British India if that metal has to be sent thither. In this arbitration of exchange, bills of exchange only will be used. Between the British Isles and Argentina the standard substance gold being that of both countries, the premium in paper for gold will alone determine the ratio.

It is necessary to remit the equivalent to 73,224 decigrams of gold or £1000 in the British Isles to the United States of Columbia. The rate of exchange for a bill upon Columbia is 5 per cent. discount on par. What addition must be made to

the weight of gold so that if 5 per cent. be deducted from that weight, the weight would be 73,224? The addition of a percentage premium equivalent to 5 per cent. discount or 5·263 per cent. will make the sum 77,077 decigrams. 5 per cent. deducted from this leaves 73,224 decigrams. The sum is $\frac{73{,}224 \times 100}{95} = 77{,}077$ decigrams. The currency intermediary of Columbia is inconvertible paper based on silver, and it is at 150 per cent. premium in paper. The pure silver in the Columbian sol is 225 decigrams. The ratio between the metals is 40. The discount equivalent to the 150 per cent. premium on silver in paper sols is 60 per cent. The sum is $\frac{77{,}077}{225 - 60\,\% \div 40} = 34{,}253$ sols: Ans.

We will now see whether it is better to make the purchase of this bill, or to make an arbitration of exchange through the countries mentioned upon assumed equivalents between the intermediaries upon the terms already indicated at certain premiums and discounts.

I. The rate in the British Isles on China is 4 per cent. discount upon par. The application of a percentage premium equivalent to 4 per cent. discount to 73,224 decigrams of gold makes the weight 76,275 decigrams. The silver weight of the tael is 334·6254 decigrams of pure silver. The ratio between gold and silver is 40 to 1. To find the weight of silver for the 76,275 decigrams of gold in China, the sum is $\frac{76{,}275}{334{\cdot}6254 \div 40} = 9{,}117{\cdot}5$ taels or 3,050,947 decigrams of pure silver: Ans.

II. The rate in China upon British India is 3 per cent. premium. To find the amount of the bill upon British India which can be purchased with 3,050,947 decigrams of silver at this premium, the sum is $\frac{3{,}050{,}947 \times 100}{103} = 2{,}962{,}084{\cdot}3$ decigrams of silver. The rupee, as an intermediary, bears a fictitious value of 72¼ per cent. The meaning of this is, that the 106·92 decigrams of pure silver which constitute a rupee has the purchasing power for other intermediaries, as though it contained 184·17 decigrams of pure silver. The sum to find the equivalent in these most dangerous silver-cum-

counter charge paper rupees is $\frac{2,962,084{\cdot}3}{106{\cdot}92 + 72\frac{1}{4}\ \%} = 16,083{\cdot}4$ silver-cum-counter charge paper rupees.

III. The rate in British India on Argentina is 9 per cent. discount. The addition of a premium equivalent to the discount upon 2,962,084·3 decigrams of silver represented by 16,083·4 silver-cum-counter charge British Indian rupees, is found thus: $\frac{2,962,084{\cdot}3 \times 100}{91} = 3,255,037$ decigrams of pure silver.

IV. The premium in paper for gold in Argentina is 180 per cent. To find the percentage discount at which the paper stands, the sum is $\frac{180 \times 100}{280} = 64{\cdot}28$ per cent. discount: Ans. The ratio between the metals is 40 of silver to 1 of gold. The mint issue weight of the Argentina peso is 14·516 decigrams of pure gold. Upon these conditions, to find the equivalent in pesos for 3,255,037 decigrams of silver, the sum is $\frac{3,255,037}{14{\cdot}516 - 64{\cdot}28\ \% \times 40} = 15,677{\cdot}7$ inconvertible paper pesos based on gold. Each inconvertible paper peso at 64·28 per cent. discount is worth 5·186 decigrams of pure gold. Therefore, 15,677·7 pesos equal 81,304·5 decigrams of gold.

V. The rate in Argentina upon the U.S. Columbia is 3 per cent. premium. To find the bill which 81,304·5 decigrams of gold will purchase at this premium, the sum is $\frac{81,304{\cdot}5 \times 100}{103} = 78,936{\cdot}4$ decigrams of gold. The mint issue weight of the Argentine sol is 225 decigrams of pure silver. It is at 150 per cent. premium in paper. In other words, the inconvertible paper is at a discount of 60 per cent. The ratio is 40. To find the paper sols equivalent to 78,936·4 decigrams of pure gold, the sum is $\frac{78,936{\cdot}4}{225 - 60\ \% \div 40}$ = 35,082·8 inconvertible paper sols based on silver: Ans. Each paper sol on these conditions is worth only 2·25 decigrams of pure gold. 35,082·8 paper sols at 2·25 decigrams of gold each is 78,936·4 decigrams of gold. Silver being the standard, the equivalent to 78,936·4 decigrams of

gold at 40 parts of silver to 1 part of gold, gives 3,157,456 decigrams of silver.

This is the result in the equivalent of 35,082·8 Columbian inconvertible paper sols based on silver, by the arbitrated remittance of 73,224 decigrams of pure gold or £1000 from the British Isles. To compare this result with that produced by the direct rate, we shall find that the direct rate yielded 77,077 decigrams or its equivalent, the indirect remittance yielded 78,936·4 decigrams of gold or the equivalent. This shows that the indirect mode is better by 2·4 per cent. without allowances for time and commissions.

We will now look at this arbitration of exchange in the manner we did the first one. The letter X represents the equivalent fixed or absolute pars for the time being between the five great diverse intermediaries, the conditions of which have been described in the introduction to this last arbitrated working. The percentage premiums or discounts are applied as in the former example :—

London	X — 4 per cent.	discount	= X China.
China	X + 3 „	premium	= X British India.
British India	X — 9 „	discount	= X Argentina.
Argentina	X + 3 „	premium	= X U.S. Columbia.

In these interchanges of intermediaries we have London automatic gold for China automatic silver ; China automatic silver for British India silver-cum-counter charge paper ; British India silver-cum-counter charge paper for Argentina inconvertible paper based on gold ; Argentina inconvertible paper based on gold for U.S. Columbia inconvertible paper based on silver.

On looking at the chain rule statement, we find that the discounts amount to 13 per cent., or to the buyer of the bills 14·942 per cent. premium. The premiums amount to 6 per cent., or to the buyer of the bills a discount of 6·382 per cent. Deducting the discount from the premiums, a premium of 8·56 is left. This percentage, added to 73,224 decigrams of gold, gives 79,492 decigrams of gold. This is ¾ of 1 per cent. more than the actual working of the sums yielded.

SUGGESTIONS FOR THE CONSIDERATION OF THE STUDENTS OF THE MECHANISM OF THE INTERCHANGES OF THINGS, AND THE QUALITY AND FUNCTIONS OF MONEY.

Let it be particularly noted that the writer never uses the word money in any other sense than the standard substance appropriated to currency purposes.

I. Whether the mechanism of the interchanges of things between individuals and communities is not a most important branch of Sociology?

II. Whether this subject has ever been adequately dealt with by professional political economists?

III. Whether all or most economists do not admit that all interchanges of things should be carried out on the terms of barter?

IV. Whether it is not believed that they are now so carried on?

V. Whether the following are not the terms of barter virtually agreed to by nearly all economists. The value-giving factors—consisting mainly of past and present labour—embodied in anything, with or without the unearned increment, for the value-giving factors embodied in anything, with or without the unearned increment, and without the intervention of an intermediary?

VI. Whether there are not two values—a cost value and an exchange value—quite irrespective of prices?

VII. Whether for the purposes of interchanges it is not necessary that the thing produced should exchange for more than its cost value if there is to be any advantage derived from trade?

VIII. Whether the introduction of one or more intermediaries does not originate prices and rates of exchange of intermediaries?

IX. Whether the world at present has not seven intermediaries. I. automatic gold, II. automatic silver, III. gold-cum-coinage charge, IV. silver-cum-coinage charge, V. silver-cum-counter charge, VI. inconvertible paper based on gold, VII. inconvertible paper based on silver?

X. Whether it is not evident that if the whole world possessed one intermediary only in the shape of a scientific gold system, discarded monetary signs, and adopted one money weight measure, prices of things and the foreign and colonial rates of exchange of the one intermediary would be so simple that school children would understand them?

XI. Whether under such conditions prices throughout the whole would be a definite weight of pure gold, and comparative prices would be discerned at a glance; the fluctuation of exchange of the intermediary, definite weight of pure gold, perceivable also at a glance; and above all other considerations, commerce would be carried on upon the terms of barter?

XII. Whether it is a fact that so long as a country possesses an effective scientific monetary system the price of the thing priced is a weight of the pure standard substance, and that whether the price be a large or a small one, say a farthing or £1000 in the British Isles, the standard substance is as good as weighed out against the thing purchased?

XIII. Whether it is a fact that in interchanges of things between two countries, say A and B, there must be four prices and two rates of exchanges of monetary or currency intermediaries. Two prices in A, one of the thing sent to B and another of the thing received from B; and a rate of exchange between the intermediary in A for the intermediary in B. Two prices in B, one of the thing received from A and another of the thing sent to A, and a rate of exchange between the intermediary in B for the intermediary in A?

XIV. Whether the altered ratios between the intermediaries does not immediately affect the prices of things interchanged?

XV. Whether it is a fact that the individual, collective and universal interchanges of things ought to be, and one day may be, effected either by barter or by means of one intermediary of equivalent value to the things interchanged, and that then, and only then, the whole world's interchanges would be conducted upon the conditions of barter?

XVI. Whether it is a fact that at present individual, collective, and universal interchanges of things is effected either by barter or by means of seven intermediaries?

XVII. Whether these seven intermediaries do not present forty-nine different exchanges of intermediaries, whereas, if there was but one intermediary in the world, the variation would be a little more or less weight for a given weight?

XVIII. Whether the ratio of exchange on one intermediary could fluctuate much more than 1 per cent.?

XIX. Whether the ratio of exchange between the present seven intermediaries has not varied as much as 400 per cent. and is now near 200 per cent. in some places?

XX. Whether, owing to the widely fluctuating ratios at which five of the world's most important intermediaries have exchanged during the past twenty years, the internal prices of things in countries using the silver standard and in countries using inconvertible paper have governed their import and export prices; whilst import and export prices in countries using the gold standard have governed internal prices?

XXI. Whether since 1893, when British India's silver-cum-coinage charge standard was destroyed, the fictitious value of the silver-cum-counter charge intermediary in foreign and colonial transactions has not handicapped the exports from that country by from 30 to 70 per cent. compared with exports of a similar nature from the rest of the east and the countries of the west using an inconvertible paper currency?

XXII. Whether the experience of experts in the exchange of intermediaries, international and intercolonial traders, and financiers with seven intermediaries, five of which are of a

vastly different nature, should not have the serious attention of rulers, statesmen, and legislators?

XXIII. Whether the observation of the Hon. T. B. Reed, Speaker of the House of Representatives in the United States of North America, "that the yellow men with the white money hold at their mercy the industries of the white men with the yellow money" is not a corollary in a terse form to the experience of the expert in the exchanges, the international and intercolonial trader, and the financier?

XXIV. Whether a trace of this experience is to be found in the conclusions and recommendations of either the British Royal Gold and Silver Commission of 1886-9 or the British Agricultural Commission of 1893-7 Reports?

MONEY.

I. Whether science does not demand that the definition of money should be limited to the standard substance, equivalent in exchange, and measure of value, in the shape of bullion or coins, appropriated to currency purposes?

II. Whether the science of money does not demand that unless the substance selected as a measure of value and equivalent in exchange is unfettered and unfavoured by legislative enactments, it cannot be money?

III. Whether, if weight alone without any other monetary sign had been the practice with money down the ages of the past, the world could have muddled itself over the subject of real money?

IV. Whether it is possible to have a valueless thing as a measure of value? or possible to have a gold standard without any gold?

V. Whether it is possible to make a piece of paper, money; or a counter, money?

VI. Whether the acquisition and maintenance of an effective metal monetary system must not depend in most countries upon the state of its international and intercolonial trade?

VII. Whether a people's standard substance and equivalent in exchange is not their most liquid wealth?

VIII. Whether it is a fact that the possession and maintenance of a scientific monetary system depends upon the conversion of State or other notes which by law are constituted legal tender into the weight of standard substance promised, without question, delay, or expense, at the will of the holder of such credit instruments?

IX. Whether experience has not demonstrated that the only sure security for the encashment of legal tender notes payable on demand is the possession of the standard substance in the shape of coin or bullion wherewith such notes must be met in the time of the distrust of them?

X. Whether any other description of property as security for the encashment of legal tender notes, in the time of the distrust of them, is any better than a rotten reed to rely upon?

XI. Whether the fabrication and circulation of State or other equally trusted notes is not as sacred a trust for the whole nation as the function of coining money?

XII. Whether the vastly important use of notes for facilitating the interchanges of things should not be entirely secured by the issuer of the notes through the possession of the weight of standard substance indicated upon the notes?

XIII. Whether, if this be not done, it is not equivalent to eating the cake whilst indulging in the fancy of possessing it?

XIV. Whether it is to the interest of the financier to keep the standard substance in a cellar? or of the banker? or of the merchant? or of any other class of the community?

XV. Whether, if the habits in the British Isles so changed that Bank of England notes became obsolete and the reserve of the standard substance from that source ceased, it would become the duty of the State, by one device or another, to obtain and maintain a reserve of standard substance adequate to the requirements of internal and international interchanges of services and things?

XVI. Whether it is conceivable that a civilized people could go back to the interchanges of things by means of barter only? Imagine a drove of bullocks for some desired Stock Exchange interest-bearing security!

XVII. Whether it is conceivable that valueless counters could take the place of a substance of equivalent value in exchange (gauged by value-giving factors) for the thing bought or sold; or that such an intermediary would cause interchanges to be carried out on the conditions of barter?

XVIII. Whether the science of money and the science of credit are not distinct? The former the more particular possession of the money power, and the latter especially the possession of the banking power, of the world?

XIX. Whether the money power does not depend upon special knowledge, which in the main is possessed only by the magnates of this power, and consists in a "masterly skill in bullion and coin," and is manifest in movements of money about the world and the control of the exchanges of intermediaries in certain countries of the world?

XX. Whether the so-called mysteries in possession of the money power do not lie in the foreign and colonial exchanges of intermediaries?

XXI. Whether these are now being so unveiled to simple understandings that the repetition of Sydney Smith's saying, "As for currency and the exchanges, next to love and religion they fill the lunatic asylums," appears highly ridiculous?

XXII. Whether money does its work by its value and credit by its quantity?

XXIII. Whether at present the banking world is not entirely ignorant of the knowledge possessed by the money world?

XXIV. Whether this ignorance does not result from the setting up of a scarecrow by the money power, resulting in the banking power dealing with credit and the money power with money?

XXV. Whether there are not indications that in the near future the knowledge possessed by the money power will become the property of the banking power also, and that this combination may prove a mightier power than that of the money power alone?

XXVI. Whether it would not be a tremendous boon to

the money power, the banking power, in fact to all associations and individuals receiving interest on property in other countries, if the intermediary of each country could be kept within, say, a safe distance from metal points? Whether the combined operation of the money and banking powers could not effect this to the benefit of local industries and of the commerce of the world as well?

BIMETALLISM.

I. Whether the insistence upon a legislative fixture of ratio between the substances gold and silver with the view to make one permanent effective metal measure of value is not one of the most dangerous delusions that ever found lodgment in the brains of a sane man?

II. Whether the attempt at such "an unscientific, unnatural, and unworkable" scheme has not been of incalculable injury to the world?

III. Whether the attempt does not present itself to the ordinary mind of the character of the action of the king who took his seat by the sea and commanded the flowing waves not to touch his feet? God's order in nature makes little of man's legislative actions if they are not on the same lines.

IV. Whether a quietus to the cry of bimetallism should not be the fact. "That no two different substances can be exchanged for any length of time on parallel lines of quantities or values; neither can they be produced for any length of time on parallel lines of cost?"

V. Whether it is not unbecoming a people who have made up their minds upon the subject to coquet with such an "unnatural and unworkable" project?

The writer is deeply sensible that his work has been simply that of unveiling that which has been hidden from the mass of mankind. He has the good fortune to know a few able experts in the exchanges, any one of whom, he feels confident, if they had the time, could have produced a far more valuable Universal Cambist than he has been able to com-

plete. Such as his work is, he is happy to contribute it to the world, with thankfulness that the unit of weight system first appreciated by him in 1875 has enabled him to accomplish it. He would commend the book to the educationists, with the hope that he may live to see the subject become a necessary and practical part of popular education.

N.B.—*October 8th*, 1897. Between the first day of this year and this date the ratio of silver to one of gold has fluctuated from 31·76 on January 7th to 39·70 on September 1st and 2nd: a rise in the silver price of gold of 25 per cent. or a fall in the gold price of silver of 20 per cent. Between September 6th and October 6th the average of the twenty-seven days has been 36·40 of silver to 1 of gold, showing a rise of 14·6 per cent. on the January price of gold of this year.

At a ratio of 39·70 to 1, compared with the state of the British Indian silver-cum-counter charge intermediary at the same time, the British Indian exports were handicapped by something like 70 per cent. To-day, with silver at 36·27 to 1, and the Indian rate $15\frac{21}{32}$ pence, the British Indian export trade is handicapped by about 60 per cent.

The following is a quotation from Archbishop Whately's "Easy Lessons on Money Matters." "The rudiments of sound knowledge concerning these (subjects) may, it has been found by experience, be communicated at a very early age. . . . Those, therefore, who are engaged in conducting, or in patronizing or promoting education, should consider it a matter of no small moment to instil, betimes, just notions on subjects with which all must in after life be practically conversant, and in which no class of men, from the highest to the lowest, can, in such a country as this at least, be safely left in ignorance or in error." This is quoted in Jevons's Political Economy, 1878, with the observation that he learned his first ideas of political economy from a copy of these "Easy Lessons on Money Matters."

Part II.

SECTION I.

COINAGE WEIGHT OF PRESENT AND PROSPECTIVE GOLD AND SILVER COINS. WEIGHTS BY WHICH GOLD AND SILVER ARE SOLD.

THE WORLD'S SEVENTEEN PRESENT AND PROJECTED GOLD MONETARY SYSTEMS.

With a Constant in each to determine the Ratio between Gold and Silver on the Price of Silver of the Day.

TABLE XI.

Weights of the World's Present and Prospective Gold and Silver Coins.

Table of weights of gold and silver coins on issue from the mints. These coins are, or should be, current in the World's present twenty-nine monetary systems. Col. I.—Pure gold or pure silver in 1000 parts of metal. Col. II.—Proportion of silver to 1 of gold between the weights of both indicated by one money of account under mintage regulations. Col. III.—Names of the coins. Col. IV.—Total weight and weight of pure gold (g.) and pure silver (s.) in decigrams. Col. V.—Total weight and weight of pure gold and pure silver in troy grains.

	Col. I.	Col. II.	Col. III.	Col. IV. Decigrams.		Col. V. Grains.	
				Total weight.	Weight of pure metal.	Total weight.	Weight of pure metal.
I.	875·0	15·0	Egyptian pound	g. 85·000	74·375	131·1749	114·7781
	900·0	—	10 piastres	s. 125 000	112·5000	192·5043	173·6139
II.	916·667	14·287	British pound	g. 79·881	73·224	123·2740	113·0016
	925·0	—	1 shilling	s. 56·552	52·310	87·2250	80·72937
III.	916·667	15·1	Turkish pound	g. 72·16	66·147	111 3598	102·0798
	830·0	—	20 piastres	s. 240·55	199·650	371·2313	308·1163
IV.	916·667	14·09	Portuguese 5-milreis ...	g. 83·675	81·285	136 8460	125·4425
	916·667	—	5 testoons	s. 125·000	114·583	192·9043	176·8284
V.	917·0	14·4	Uruguay 5-peso	g. 84·850	77·807	130·9435	120·0750
	900·0	15·5	1 peso	s. 250·000	225·000	385·2087	347·2278
VI.	916·667	14·3	Newfoundland 2-dollars ...	g. 33·280	30·507	51·35886	47·07895
	925·0	—	50 cents	s. 117·820	108·983	181·8234	168·1871
VII.	900·0	16·0	United States 5-dollars ...	g. 83·591	75·232	129·0000	116·09985
	900·0	—	1 dollar	s 267·290	240·567	412·5000	371·2514
VIII.	900·0	15·5	Argentine Republic 5-dollars	g. 80·645	72·5805	124·5415	112·00875
	900·0	—	1 dollar or peso	s. 250·000	225·000	385·2087	347·2278
IX.	—	—	Cuba	—	13·933	—	21·5019
X.	900·0	16·39	Chili 5-pesos	g. 76·265	68·639	117·6941	105·9253
	900·0	—	1 condor	g. 5·991035	5·49178	9·245578	8·4751138
	900·0	—	1 peso	s. 250·000	225·000	385·2087	347·2278
XI.	916·6667	14·22	Brazil 10-milreis	g. 89·648	82·178	138·34793	126 81957
	916·667	—	2 milreis	s. 255 000	233·750	393·5249	360 7311
XII.	983·0	15·6	Netherlands 10-guilders ...	g. 67·20	60·48	102·6682	93·3348
	945·0	—	1 guilder or florin ...	s. 100·000	94·500	154·3235	145·8357
XIII.	900·0	14·88	Danish 20-crowns	g. 89·606	80·645	138·2831	124·45442
	800·0	—	2 crowns	s. 150·000	120·000	231·4852	185·1882
XIV.	900·0	13·95	German 20-marks	g. 79·65	71·6846	122·917896	110·626801
	900·0	—	1 mark	s. 55·555	50·000	85·7359	77·1617
XV.	900·0	15·5	French 20-francs	g. 64·516	58·065	99·56334	89·60701
	900·0	—	1 franc	s. 50·000	45·000	77·0417	69·4455
XVI.	A weight	No coin	Shanghae tael	s. —	334·6254	—	516·40584
XVII.	900·0	—	Trade dollar	s. 272·156	244·940	420·0000	378·0000
XVIII.	902·778	16·0	Mexican dollar	s. 270·73	244·40918	417·7847	377·12098
	875 0	—	16 pesos	g. 270·643	236·813	417·66657	365 45753
XIX.	945·0	—	Java dollar or 2½ guilders ...	s. 250	236·25	385·8087	364·589·5
XX.	900 0	16·173	Japan 1-yen	s. 269·564	242·6c7	416·0c00	374·4000
	—	—	5 yens	g. 83·3335	75·000	128·60317	115·74262
	900·0	—	1 yen	g. 8·3333	7·5	12 86029	11·57426
XXI.	900·0	15·79	Philippine dollar	s 259·600	233·64	400·6253	360·5628
	875·0	—	1 peso	g. 16·915	14·796	26·0961	22·83705
XXII.	900 0	15·5	Peruvian sol	s. 250·000	225·000	385·2087	347·2278
	—	—	10 sols	g. 161·290	145·161	248·90837	224·01753
XXIII.	—	—	Tripoli mahbub	s. —	202·957	—	313·2000
XXIV.	868·056	15·0	Russian rouble	s. 199·957	179·961	308·5806	277·7221
	900·0	—	5 roubles	g. 64·510	58·059	99·5540	89·5986
	900·0	—	1 rouble	g. 8·60134	7·741206	13·2739	11·946505
XXV.	910·0	—	Siamese tical	s. 151·805	133·670	234·2711	206·2850
XXVI.	900·0	15·3	Austrian florin	s. 123·457	111·111	190·5231	171·4708
	900·0	—	8 florins	g. 64·516	58·065	99·563349	89·60701
	900·0	—	1 crown	g. 3·387534	3·04878	5·22776	4·704986
XXVII.	916·667	15·0	Indian rupee	s. 116·638	106 918	180·0000	165·0000
	916·667	—	15 rupees	g. 116 638	106·918	180 0000	165·0000
	916 667	—	1 rupee	g. 5·32537	4·88158	8·21831	7·53344
XXVIII.	900·0	13·37	Persian kran	s. 46·0034	41·4298	71 04	63·936
	990 0	—	1 thomau	g. 34·667	34·321	53·49032	52·96536
XXIX.	900·0	15·86	Tunis 1-piastre	s. 30·970	27·875	47·7939	43·0145
	900·0	—	50 piastres	g. 97·600	87 840	150·61973	135·55776
XXX.	9·16	—	Bolivia	s. 225·	202·5	347·2278	312·50504

TABLE XII.

Gold Monetary Systems.

Weights by which pure gold (g.) and pure silver (s.) are sold in the world's gold monetary systems. Also monetary signs for one kilogram, one pound avoirdupois, and one troy ounce of pure gold.

Name of system.	Name of weight.	Grams.	Monetary signs for names of weights.	Monetary signs for one kilogram.	Monetary signs for 1 lb. avoirdupois, or 7000 troy grains, or 453·59242768 grams.	Monetary signs for 480 troy grains, or 311·035807 decigrams.
I. Egyptian	Mitkal	= 4·68004192	Pias. 62·924933	E£134·453769	E£60·987217	E£4·172000
II. British	Std. troy oz. g.	= 28·51152402	£3·89375	£136·566666	£61·946022	£4·247741
	„ s.	= 28·77071969				
III. Turkish	Cheky	= 320·25894652	T£48·416494	T£151·179139	T£68·573750	T£4·702214
IV. Portuguese ...	Kilogram	=1000	Ml. 615·115847	Ml. 615·115847	Ml. 279·012123	Ml. 19·132325
V. Uruguayan ...	„	= „	P. 642·611988	P. 642·611988	P. 291·484076	P. 19·987533
VI. United States, N.A.	Troy oz.	= 31·10348075	D. 20·671835	D. 664·614126	D. 301·464255	D. 20·671901
VII. Argentine ...	Kilogram	=1000	P. 688·890534	P. 688·890534	P. 312·475685	P. 21·426917
VIII. Cuban	„	= „	„ 717·720757	„ 717·720757	„ 325·553142	„ 22·323660
IX. Chilian, old ...	„	= „	„ 728·597368	„ 728·597363	„ 330·421285	„ 22·661925
X. „ new ...	„	= „	„ 910·651288	„ 910·651288	„ 825·947621	„ 56·636590
XI. Russian, old ...	Zolotnick	= 4·265798317	R. 3·673675	R. 861·192925	R. 390·630588	R. 27·902240
XII. „ new ...	„	= „	„ 3·303017	„ 1291·788385	„ 585·945430	„ 40·179244
XIII. Brazilian	Kilogram	=1000	Ml. 1216·879000	Ml. 1216·879000	Ml. 551·966027	Ml. 37·849073
XIV. Japanese, old ...	100 mommes	= 375	Y. 250	Y. 666·666666	Y. 302·394954	Y. 22·357205
XV. „ new ...	„	= „	„ 500	„ 1333·333333	„ 604·789908	„ 44·714410
XVI. Austrian, old ...	½ kilogram	= 500	Fl. 1688·888888	Fl. 1366·666666	Fl. 624·944789	Fl. 42·853502
XVII. „ crown, new	„	= „	„ 1640	Cr. 3280	Cr. 1487·783357	Cr. 102·019761
XVIII. British India, old	Tola	= 116·63805283	R. 163·60000	R. 1403·075529	R. 636·505270	R. 43·636632
XIX. „ new	„	= „	„ 23·893262	„ 2048·513929	„ 929·190355	„ 63·716114
XX. Dutch	Kilogram	=1000	G. 1653·440056	G. 1653·440056	G. 749·988203	G. 51·427878
XXI. Scandinavian ...	½ „	= 500	Kr. 1240·000109	Kr. 1240	Kr. 1124·909238	Kr. 77·112081
XXII. German	Kilogram	=1000	Mk. 2790	Mk. 2790	Mk. 1265·524776	Mk. 86·779126
XXIII. French	„	=1000	Fr. 3444·4444	Fr. 3444·4444	Fr. 1562·356594	Fr. 107·134546

THE WORLD'S SEVENTEEN PRESENT AND POSSIBLE FUTURE GOLD MONETARY SYSTEMS.

I. EGYPTIAN MONETARY SYSTEM.

Pound.

	Gross.	Fineness.	Pure.	Monetary Sign for ·1.
Decigrams ...	85·	875	74·375	13·445378 och.
Grains troy ...	131·174958	„	114·778088	8·712464 „

MONEY TABLE.

1 ochr el guerches.
10 „ „ =1 piastre.
100 piastres=1 Egyptian pound.

TABLE OF MONEY WEIGHTS.

1 kamha.
4 kamhas = 1 kirat.
16 kirats = 1 dirhem.
12 dirhems = 1 onckie.

Gold and silver are sold per mitkal or 46·8004191808 decigrams, or 72·2240748 troy grains. Since one mitkal equals 96 kamhas,

1 decigram = 2·0512636785 kamhas.
1 troy grain = 1·3291966739 „
1 kamha = ·4875043665 decigram
„ = ·7523341125 troy grain.

One onckie is eight times the weight of a mitkal, or 374·4033534464 decigrams.

The constant 629·24936 ochrs being divided by the price of a mitkal of gold or silver, in ochr el guerches gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT OF EGYPT.

S.C. Standard coins. T.C. Token coins. P.G. Pure gold.

Pound	P.G.	S.C.		74·37	decigrams	114·77	grains P.G.
½	,,	,,	,,	37·19	,,	57·39	,,
20 och.		$\frac{1}{80}$th	silver T.C.	1·49	,,	2·29	,,
10	,,		,,	·74	,,	1·15	,,
5	,,			·37	,,	·57	,,
2	,,			·15	,,	·23	,,
1	,,	$\frac{1}{1000}$		·074	,,	·11	,,
½	,,	$\frac{1}{2000}$		·637	,,	·057	,,
¼	,,	$\frac{1}{4000}$		·018	,,	·028	,,
⅛	,,	$\frac{1}{8000}$		·0093	,,	·014	,,
$\frac{1}{16}$	,,	$\frac{1}{16000}$		·0046	,,	·0071	

II. BRITISH MONETARY SYSTEM.

Pound or Sovereign.

	Gross.	Fineness.	Pure.	Monetary Sign for ·1.
Decigrams ...	79·881	$\frac{11}{12}$	73·22381772	3·277622 pence
Troy grains ...	123·274478	,,	113·001605	2·123863 ,,

MONEY TABLE.

12 pence = 1 shilling.
20 shillings = 1 pound.

WEIGHT TABLE—TROY.

24 grains = 1 pennyweight.
20 pennyweight = 1 ounce.
12 ounces = 1 pound.

The following are the coins and moneys of account of the British Isles, Australasia, many parts of the British Empire, and the British islands of the Atlantic. The constant 942·9955 pence, being divided by the price of silver in pence, gives the ratio of silver to that of gold. S.C., Standard coins. T.C., Token coins.

PURE GOLD.

Pound	S.C.			73·22	decigrams	113·	troy grains.
½	,,	,,		36·6	,,	56·5	,,
5	shillings	¼	silver T.C.	18·3	,,	28·25	,,
4	,,	$\frac{1}{5}$	,, ,,	14·6	,,	22·6	,,
2/6	,,	⅛	,, ,,	9·15	,,	14·12	,,
2/-	,,	$\frac{1}{10}$	,, ,,	7·32	,,	11·3	,,
1/-	,,	$\frac{1}{20}$	,, ,,	3·66	,,	5·65	,,
6	pence	$\frac{1}{40}$	,, ,,	1·83	,,	2·82	,,
3	,,	$\frac{1}{80}$	,, ,,	·91	,,	1·41	,,
1	penny	$\frac{1}{240}$	bronze ,,	·30	,,	·47	,,
½	,,	$\frac{1}{480}$	,, ,,	·15	,,	·23	,,
¼	,,	$\frac{1}{960}$	,, ,,	·076	,,	·12	,,
⅛	,,	$\frac{1}{1920}$		·038	,,	·059	,,
$\frac{1}{16}$	,,	$\frac{1}{3840}$		·019	,,	·029	,,
$\frac{1}{32}$	,,	$\frac{1}{7680}$		·0095	,,	·015	,,
$\frac{1}{64}$	,,	$\frac{1}{15360}$		·0047	,,	·0073	,,

1 decigram = 1·54323563905 troy grains.
1 troy grain = ·64798918240 decigram.

Gold is sold per standard ounce of 440 troy grains of pure gold, and silver per standard ounce of 444 troy grains of pure silver. The constant 942·9955, being divided by the price of silver in pence, gives the ratio between the metals. The constant 920·341, being divided by the price in pence of an ounce of Mexican dollars, gives the ratio established between the metals, since an ounce of Mexican dollars contains 433·333 grains of pure silver. The British mint coins £46 14*s.* 6*d.* out of 1 lb. troy, or 5760 troy grains of standard gold, which is $\frac{11}{12}$ fine. A pound troy of pure gold is coined into £50 19*s.* 5*d.* There is no charge for coinage. The Bank of England almost invariably takes in standard gold, or 440 troy grains of pure gold at £3 17*s.* 9*d.* per ounce, and with rare exceptions, parts with standard gold at £3 17*s.* 10½*d.* per ounce. £3 17*s.* 10½*d.* is the monetary sign in the British Isles, Australasia, and elsewhere in the empire for 440 grains of pure gold. The British and Australian mints are open to the unlimited reception of gold from any place or person. Of the metals gold only is unlimited legal tender. Forty shillings in silver only are legal tender in one payment. Twelve pence only are legal tender in one payment.

The tolerance on the pound is 0·4 of a grain. The pound is not legal tender when its weight is below 112·2921 grains of pure gold. The Bank of England does not re-issue a sovereign when it is below the weight of 122·5 grains of gold and alloy. Any one presenting Bank of England notes at the Bank of England can obtain gold coins of legal weight in exchange for the same without question, delay, or expense. Silver is purchased for coinage in the British Isles at the discretion of the head of the mint, and the profit, when such accrues, is the profit of the whole people of the British Isles. The bronze coinage is dealt with in the same manner. There is a coinage charge upon gold in Australasia of about 1 per cent.

Gold is unlimited legal tender in the following British possessions; (*a*) denotes the possession of a mint:—

Antigua, Ascension, Australasia (*a*), Bahama Islands, Barbadoes, Bermuda Islands, British Guiana, Basutoland,

Bechuanaland, Canada, Channel Islands, Cape of Good Hope, Cyprus, Dominica, Falkland Islands, Fiji, Gambia, Gold Coast, Grenada, Jamaica, Lagos, Malta, Montserrat, St. Kitts, Natal, New Guinea, Nevis, Royal Niger Company Territories, Sandwich Islands, Sierra Leone, St. Lucia, St. Helena, Tobago, Trinidad, Transvaal, Tristan d'Acunha, Virgin Islands, Zululand, Turk's Islands.

MONETARY SIGNS FOR WEIGHTS OF PURE GOLD.

$\frac{1}{100}$	of a French centime	·000448
,,	,, German pfennig	·000553
,,	,, Scandinavian ore	·000622
,,	,, Dutch cent	·000933
1	,, Brazilian reis	·0001268
$\frac{1}{100}$	,, Chilian centavo	·002118
,,	,, Cuban cent	·0021501
,,	,, Argentine centesimo	·00224
,,	,, U.S.A. cent	·002321
,,	,, Newfoundland cent	·002354
,,	,, Uruguayan centesimo	·002401
1	,, Portuguese reis	·0002508
1	,, Turkish para	·0002552
$\frac{1}{1000}$	,, British penny	·0004708
$\frac{1}{100}$	,, $\frac{1}{2}$ an Egyptian piastre	·0005738

III. TURKISH MONETARY SYSTEM.

Pound.

	Gross.	Fineness.	Pure.	Monetary Sign for ·1.
Decigrams ...	72·16	$\frac{11}{12}$	66·1466666	60·471678 paras.
Troy grains ...	111·3598	,,	102·079887	39·1848 ,,

MONEY TABLE.

40 paras = 1 piastre.
100 piastres = 1 pound.

WEIGHT TABLE.

4 kamhas = 1 kirat.
16 kirats = 1 dirhem.
1½ dirhem = 1 mitkal.

Gold and silver are sold per cheky, or 3202·5894 decigrams, or 4942·3502 troy grains. The constant 4841·6490 piastres, divided by the price of silver in piastres, will give the ratio. As one cheky contains 6400 Turkish grains,

1 decigram = 1·9983828928 Turkish grains.
1 troy grain = 1·2949304968 ,,
1 Turkish grain = ·5004046039 decigram.
,, = ·7722422188 troy grain.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

Pound	S.C. P.G.		66·15	decigrams	102·08	troy grains
,, $\frac{1}{2}$	,, ,,		33·07	,,	51·04	,,
,, $\frac{1}{4}$	,, ,,		16·53	,,	25·51	,,
Piastres	$20\frac{1}{3}$	T.C. silver	13·23	,,	20·41	,,
,,	$10\frac{1}{10}$	,, ,,	6·61	,,	10·21	,,
,,	$5\frac{1}{20}$	,, ,,	3·31	,,	5·104742	,,
,,	$2\frac{1}{2}\frac{1}{40}$	,, ,,	1·65	,,	2·55	,,
,,	$2\frac{1}{30}$	,, ,,	1·32	,,	2·04	,,
,,	$1\frac{1}{2}$	,, ,,	·99	,,	1·53	,,
,,	$1\frac{1}{100}$	,, ,,	·66	,,	1·021	,,
,,	$\frac{1}{2}\frac{1}{200}$	,, bronze	·33	,,	·51	,,
,,	$\frac{1}{4}\frac{1}{400}$	,, ,,	·16	,,	·25	,,
Paras	$5\frac{1}{800}$	,, ,,	·082	,,	·13	,,
,,	$1\frac{1}{4000}$	,, ,,	·016	,,	·025	,,
,,	$\frac{1}{2}\frac{1}{8000}$		·0082	,,	·013	,,
,,	$\frac{1}{4}\frac{1}{16000}$		·0041	,,	·0064	,,

The medjidie is one pound; the zarim, half a pound; the tyeirek, quarter of a pound: these are gold coins. Coinage is exclusively a State function. The State receives fine gold at $47\frac{1}{2}$ piastres per dram, and fine silver at 3 piastres $2\frac{1}{2}$ centimes per dram, and parts with the same at 48 piastres and 3 piastres $12\frac{1}{2}$ centimes respectively. One kilo, or 400 drams of pure gold, is coined into 192 Turkish pounds. An oka of pure silver is coined into $62\frac{1}{2}$ pieces of 20 piastres each. The tolerance on gold is 2 per mille; on silver coins, 3 per mille. The charge for coinage of gold is 1 per cent. The dram weight is divided into 16 kars, or 64 grains.

The Turkish piastre is the basis of the metal currency of Acre, Aleppo, Bagdad, Broussa, Damascus, Smyrna, and Tripoli. At Bussorah the Persian toman forms a basis of reckoning the value of moneys.

IV. PORTUGUESE MONETARY SYSTEM.

Milreis.

	Gross.	Fineness.	Pure.	Monetary Sign for ·1.
Decigrams ...	17·735	916·637	16·2570834	61·511648 reis.
Troy grains ...	27·3965	,,	25·088524	39·858849 ,,

MONEY TABLE.	WEIGHT TABLE.
1000 reis = 1 milreis.	Same as France.

Gold and silver are sold by the kilo or 15432·35639 troy grains. The constant 615·11646 milreis, divided by the price of silver in milreis, gives the ratio between gold and silver.

Gold coins: corôa of 10,000 reis, meia corôa of 75,000 reis, quintos de corôa of 2000, one-tenth of corôa of 1000 reis; peca, 8000 reis; meia, 4000. British sovereigns taken at 4500 reis, and half-sovereign, 2250 reis.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

10 milreis	S.C.	P.G.		162·57	decigrams	250·88	troy grains
5 „	„	„		81·28	„	125·44	„
1 „	„	„		16.25	„	25·09	„
500 reis	$\frac{1}{2}$	T.C.	Silver	8·13	„	12·54	„
200 „	$\frac{1}{5}$	„	„	3·25	„	5·02	„
100 „	$\frac{1}{10}$	„	„	1·62	„	2·51	„
50 „	$\frac{1}{20}$	„	„	0·81	„	1·25	„
40 „		„		·65	„	1·00	„
20 „	$\frac{1}{50}$	„		·32	„	·50	„
10 „	$\frac{1}{100}$	„		·16	„	·25	„
5 „	$\frac{1}{200}$	„		·081	„	·135	„
3 „		„		·048	„	·075	„
1 „	$\frac{1}{1000}$			·016	„	·025	„
$\frac{1}{2}$ „	$\frac{1}{2000}$			·0081	„	·012	„
$\frac{1}{4}$ „	$\frac{1}{4000}$			·0041	„	·0062	„

The coinage charge on gold is one milreis per kilo, which is a trifle more than $\frac{1}{5}$ per cent., but the mintage is sometimes undertaken gratuitously. The mint buys gold, $\frac{11}{12}$ fine, at 563·856 milreis per kilo, which is 615·115 milreis per kilo of pure gold.

The monetary system is at present displaced by inconvertible paper. It is, or should be, in use in Angola, Cape Verde Islands, Delagoa Bay, Guinea, Mozambique, Principe, Sofala, St. Thomas, and Ziglunchor.

V. URUGUAY MONETARY SYSTEM.

Peso.

	Gross.	Fineness.	Pure Gold.	Monetary Sign for '1.
Decigrams ...	16·97	917	15·56149	6·42612 centesimos.
Troy grains ...	26·1887	„	24·015034	4·164058 „

MONEY TABLE.

100 centesimos = 1 peso.

WEIGHT TABLE.

See FRANCE.

Gold and silver are sold per kilo or 15432·35639 troy grains. The constant 642·61198 peso, being divided by the price of silver in pesos, gives the ratio.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

Peso	S.C. P.G.	15·56	decigrams	24·01	troy grains
$\frac{1}{2}$	T.C. Silver	7·78	„	12 01	„
Cents 40	T.C. „	6·22	„	9·60	„
„ $25\frac{1}{4}$	„ „	3·89	„	6·04	„
„ $20\frac{1}{5}$	T.C. bronze	3·11	„	4·80	„
„ $10\frac{1}{10}$	„ „	1·55	„	2·40	„
„ $5\frac{1}{20}$	„ „	·78	„	1·20	„
„ $2\frac{1}{2}\frac{1}{40}$	„ „	·39	„	·60	„
„ $1\frac{1}{100}$	„ „	·15	„	·24	„
„ $\frac{1}{2}\frac{1}{200}$	„ „	·077	„	·12	„
„ $\frac{1}{4}\frac{1}{400}$		·039	„	·060	„
„ $\frac{1}{8}\frac{1}{800}$		·019	„	·030	„
„ $\frac{1}{16}\frac{1}{1600}$		·0099	„	·015	„
„ $\frac{1}{32}\frac{1}{3200}$		·0049	„	·0075	„
„ $\frac{1}{64}\frac{1}{6400}$		·0025	„	·0037	„

This monetary system is displaced by inconvertible paper.

VI. UNITED STATES N.A. MONETARY SYSTEM.

Dollar.

	Gross.	Fineness.	Pure Gold.	Monetary Sign for '1.
Decigrams ...	16·718	$\frac{9}{10}$	15·046308815	6·646148 cents.
Troy grains ...	25·80	„	23·22	4·306632 „

MONEY TABLE.

100 cents = 1 dollar.

MONEY WEIGHT TABLE.

24 grains = 1 pennyweight.
20 pennyweights = 1 ounce.
12 ounces = 1 pound troy.

Gold and silver are sold by the troy ounce of 480 grains of pure metal. The constant 2067·1834 cents, divided by the price of silver of the day, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

20	dollars		S.C.	300·92	decigrams	464·4	troy grains
10	„		„	150·46	„	232·2	„
5	„		„	75·23	„	116·1	„
2½	„		„	37·61	„	58·05	„
1	„	silver	T.C.	15·04	„	23·22	„
50	cents	½	„	7·52	„	11·61	„
25	„	¼	„	3·76	„	5·80	„
10	„	1/10	„	1·50	„	2·32	„
20	„	1/5	„	·75	„	1·16	„
3	„		„	·45	„	·69	„
3	„	bronze	„	·45	„	·69	„
1	„	1/100	„	·15	„	·23	„
½	„	1/200		·075	„	·12	„
¼	„	1/400		·037	„	·060	„
1/8	„	1/800		·018	„	·030	„
1/16	„	1/1600		·0094	„	·015	„
1/32	„	1/3200		·0047	„	·0072	„
1/64	„	1/6400		·0023	„	·0036	„

One pound troy, or 5760 grains, of standard gold is coined into 223·2558 dollars; 5760 grains of pure gold are coined into 248·147 dollars; 43 troy ounces, 900 fine or 18,576 grains of pure gold, are coined into 800 dollars. The mints are open to the unlimited reception of gold from any person or place. Transmission charge on gold to Europe less than ⅜ per cent.

By act of February 12th, 1873, the tolerance in fineness of ingots. Gold ·001, silver ·003. By weight of coins, by the piece.

Gold, $20 and $10, ½ grain; $2½, ⅓ ¼ ⅛ ¼ grain.
Silver, $1, ½ ¼ 1/10. 1½ grains per piece.

Least current weight for gold only. Gold coin when reduced by natural abrasion not more than ½ of 1 per cent. after circulation of twenty years, as shown by the date of coinage, shall be received at their nominal value by the U.S.A. Treasury.

The monetary system of Liberia is the same as that of the United States, N.A.

VII. ARGENTINE REPUBLIC MONETARY SYSTEM.

Peso.

	Gross.	Fineness.	Pure Gold.	Monetary sign for ·1.
Decigrams ...	16·129	$\frac{9}{10}$	14·516129032	6·888930 centavos
Troy grains ...	24·8908	„	22·401743	4·46393 „

MONEY TABLE.
100 centavos = 1 peso.

MONEY WEIGHT TABLE.
See FRANCE.

The constant 688·888888 peso divided by the price of a kilogram of silver in pesos, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Argentino	5 Pesos		S.C.	72·58	decigrams	111·008	troy grains
$\frac{1}{2}$ „	$2\frac{1}{2}$ „		„	36·29	„	55·50	„
Peso	1	silver	T.C.	14·51	„	22·40	„
Centavos	$50\frac{1}{2}$	peso	„	7·26	„	11·20	„
„	$20\frac{1}{5}$	„	„	2·90	„	4·48	„
„	$10\frac{1}{10}$	„	„	1·45	„	2·24	„
„	$5\frac{1}{20}$	„	„	·72	„	1·12	„
„	$2\frac{1}{50}$	bronze	„	·29	„	·44	„
„	$1\frac{1}{100}$	„	„	·14	„	·22	„
„	$\frac{1}{2}\ \frac{1}{200}$			·072	„	·11	„
„	$\frac{1}{4}\ \frac{1}{400}$			·036	„	·056	„
„	$\frac{1}{8}\ \frac{1}{800}$			·018	„	·028	„
„	$\frac{1}{16}\ \frac{1}{1600}$			·0091	„	·014	„
„	$\frac{1}{32}\ \frac{1}{3200}$			·0045	„	·0070	„
„	$\frac{1}{64}\ \frac{1}{6400}$			·0022	„	·0035	„

At present the currency consists of inconvertible paper. The Hayti gourde and the Paraguay coin are of the same weight.

VIII. BRAZIL REPUBLIC MONETARY SYSTEM.

Milreis.

	Gross.	Fineness.	Pure Gold.	Monetary sign for ·1.
Decigrams ...	8·9648	$\frac{11}{12}$	8·21779167	121·687202 reis.
Troy grains ...	13·83487	„	12·681957	78·852184 „

MONEY TABLE.
1000 reis = 1 milreis.

MONEY WEIGHT TABLE.
See FRANCE.

The constant 1216·8733 mil., being divided by the price of a kilo of silver in milreis, gives the ratio between gold and silver.

This system is displaced at present by inconvertible paper.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Milreis	20	S.C.				164·35	decigrams	253·64 troy grains
„	10	„				82·17	„	126·82 „
„	5	„				32·87	„	63·41 „
„	2		silver	T.C.		16·43	„	25·36 „
„	1		„	„		8·21	„	12·68 „
Reis	500	$\frac{1}{2}$	M.	„	„	4·11	„	6·34 „
„	200	$\frac{1}{5}$	„	„	„	1·64	„	2·53 „
„	100	$\frac{1}{10}$	„	„	„	·82	„	1·26 „
„	200	$\frac{1}{5}$	„	nickel	„	·41	„	·63 „
„	100	$\frac{1}{10}$	„	„	„	·20	„	·32 „
„	40	$\frac{1}{25}$		bronze	„	·32	„	·51 „
„	20	$\frac{1}{50}$		„	„	·164	„	·25 „
„	10	$\frac{1}{100}$		„	„	·082	„	·12 „
„	1	$\frac{1}{1000}$				·0082	„	·012 „
„	$\frac{1}{2}$	$\frac{1}{2000}$				·0041	„	·0063 „
„	$\frac{1}{4}$	$\frac{1}{4000}$				·0020	„	·0031 „

One kilogram of fine gold is coined into 1216·875 milreis. There is an export duty in Brazil of $2\frac{1}{2}$ per cent. on gold and silver. Customs duties are payable in gold in Rio de Janeiro.

IX. RUSSIAN MONETARY SYSTEM.

Rouble.

	Gross.	Fineness.	Pure Gold.	Monetary sign for ·1.
Decigrams ...	8·60134	$\frac{9}{10}$	7·741206	12·917884 copecks.
Troy grains ...	13·273894	„	11·9465049	8·554803 „

MONEY TABLE.

100 copecks = 1 rouble.

MONEY WEIGHT TABLE.

1 dolis.
96 dolis = 1 zolotnick.
3 zolotnick = 1 lolti.
8 „ = 1 lana.
12 lanas or 32 lolti = 1 funt or pound.

Gold and silver are sold per zolotnick or 42·6579897044 decigrams or 65·83132 troy grains. Since one zolotnick equals 96 dolis,

1 decigram = 2·2504580092 dolis.
1 troy grain = 1·4582724454 „
1 dolis = ·4443539919 decigram.
„ = ·6857429167 troy grain.

The constant 551·05 copecks, being divided by the price of a zolotnick of silver in copecks, will give the ratio between the metals. The pure gold in the rouble weighs 17·42 dolis.

In 1873 the ratio between the metals was about sixteen parts of silver to one part of gold. It is now forty parts of silver to one part of gold, with every probability of a further considerable rise. With the exception of China and Mexico, both of which possess effective silver systems, though the latter has it in combination with a coinage charge, the world, it would appear, is shaping its practice with a view to obtain in the course of time an effective gold standard. Peru and Costa Rica have closed their mints against the reception of silver from the public. Russia, Austria-Hungary, Japan, and Chili have scaled down their gold weights to bring them into nearer touch with the present ratio between the metals. Such foreign debts as these countries have incurred in gold and the annual interest upon them must be met at the old ratio between the metals. It will be of interest to state these weights.

Decigrams.

	Debt weight.	Commercial weight.
Russia	11·6118	7·7412
Austria-Hungary ...	6·0975	3·0487
Japan	15·0000	7·5000
Chili	13·7277	5·4917

Austria-Hungary has given the name crown to the lesser weight, the heavier being gulden or florin. Chili has named the lesser weight condor, the heavier being peso. In Russia the term rouble is used for both weights, and in Japan the term yen is used for both weights. These four projects, like that attempted with the British Indian currency, are in various stages to the desired goal, and time will show when and how, if ever, that goal is reached. It is one thing temporarily to gain, and quite another thing to permanently retain, a scientific automatic gold monetary system.

COINS AND MONEYS OF ACCOUNT.
S.C., Standard. T.C., Token Coins.

PURE GOLD.

1	rouble	S.C.	7·74	decigrams	11·94	troy grains
75	copecks $\frac{3}{4}$	T.C.	5·80	„	8·95	„
50	$\frac{1}{2}$		3·87	„	5·97	„
40	$\frac{2}{5}$		3·09	„	4·77	„
20	$\frac{1}{5}$		1·54	„	2·38	„
25	$\frac{1}{4}$		1·93	„	2·98	„
10	$\frac{1}{10}$		·77	„	1·19	„
5	$\frac{1}{20}$		·38	„	·59	„
$2\frac{1}{2}$	$\frac{1}{40}$		·19	„	·29	„
1	$\frac{1}{100}$		·077	„	·119	„
$\frac{1}{2}$	$\frac{1}{200}$		·038	„	·059	„
$\frac{1}{4}$	$\frac{1}{400}$		·019	„	·0297	„
$\frac{1}{8}$	$\frac{1}{800}$		·0096	„	·0148	„
$\frac{1}{16}$	$\frac{1}{1600}$		·0048	„	·0074	„
$\frac{1}{32}$	$\frac{1}{3200}$		·0024	„	·0037	„
$\frac{1}{64}$	$\frac{1}{6400}$		·0012	„	·00185	„

There are imperials of ten roubles in gold and half roubles on the scale of the larger weight to the rouble. The silver rouble contains 405 dolis of pure silver or 179·961 decigrams or 277·7221 troy grains pure silver. The constant 551·05095, divided by the price of silver, yields the ratio.

Silver rouble.

		Gross.	Fineness.	Pure Silver.	Monetary sign for ·1.
Decigrams	...	199·957	$\frac{9}{10}$	179·961	·55567 copecks.
Troy grains	...	308·5806	„	277·7221	·36007 „

X. JAPANESE MONETARY SYSTEM.

Yen.

		Gross.	Fineness.	Pure Gold.	Monetary sign for ·1.
Decigrams	...	8·33333	$\frac{9}{10}$	7·5	13·333333 sens.
Troy grains	...	12·8602964	„	11·574266	8·63985 „

MONEY TABLE.

100 sens = 1 yen.

MONEY WEIGHT TABLE.

= 1 mo.
10 mos = 1 rin.
10 rins = 1 fun.
10 funs = 1 momme or 37·50 decigrams or 57·8713364 troy grains.

Gold is sold per 100 mommes or 3750 decigrams or 5787·133646382 troy grains. Since one momme equals 100 rins,

1 decigram equals 2·6666666667 rins.
1 troy grain „ 1·727911531 „
1 rin „ ·3750000000 decigram.
„ „ ·5787133646 troy grain.

The constant 500 yens, divided by the price in yens for 1000 mommes of silver, will give the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

1 yen				S.C.	7·5	decigrams	11·57	troy grains
75	sens	$\frac{3}{4}$	silver	T.C.	5·62	„	8·68	„
50	„	$\frac{1}{2}$	„	„	3·75	„	5·78	„
40	„	$\frac{2}{5}$	„	„	3·00	„	4·63	„
25	„	$\frac{1}{4}$	„	„	·187	„	2·89	„
20	„	$\frac{1}{5}$	„	„	1·5	„	2·31	„
10	„	$\frac{1}{10}$	„	„	·75	„	1·15	„
5	„	$\frac{1}{20}$	„	„	·37	„	·57	„
$2\frac{1}{2}$	„	$\frac{1}{40}$	„	„	·187	„	·29	„
1	„	$\frac{1}{100}$	„	„	·075	„	·11	„
$\frac{1}{2}$		$\frac{1}{200}$			·037	„	·057	„
$\frac{1}{4}$		$\frac{1}{400}$			·018	„	·029	„
$\frac{1}{8}$		$\frac{1}{800}$			·0093	„	·014	„
$\frac{1}{16}$		$\frac{1}{1600}$			·0046	„	·0072	„
$\frac{1}{32}$		$\frac{1}{3200}$			·0023	„	·0036	„
$\frac{1}{64}$		$\frac{1}{6400}$			·0012	„	·0018	„

The coinage charge is one per cent. on both gold and silver.

There are gold coins of 20, 10, 2, and 1 yen each on the scale of fifteen decigrams in one yen.

The tolerance upon the new gold coinage is:

20	yen	piece	per	·324	decigram	per piece	31·125	per 1000 pieces.
10	„	„		·2269	„	„	23·25	„
5	„	„		·162	„	„	15·375	„

The least legal circulating weight:

20	yen	piece	per	165·75	decigrams.
10	„	„		82·875	„
5	„	„		41·438	„

The silver yen on issue from the mint contains 242·607149 decigrams of pure silver; this compared with the new yen gives a ratio of 32·347 parts of silver to one of gold. The new ratio which will be established between gold and silver by the countries which are scaling down their gold weights will be as follows to their present silver weights, should they prove successful:—Parts of silver to one of gold—Russia 23·24, Austria-Hungary 36·44, Japan 32·347, Chili 40·97, British India 21·90.

Silver Yen.

		Gross.	Fineness.	Pure Silver.	Monetary sign for ·1.
Decigrams	...	269·564	$\frac{9}{10}$	242·607	·41219 sens.
Troy grains	...	416·	,,	374·4	·26709 ,,

XI. DUTCH MONETARY SYSTEM.

Guilder or Florin.

		Gross.	Fineness.	Pure Gold.	Monetary sign for ·1.
Decigrams	...	6·72	$\frac{9}{10}$	6·048	16·534391 cents.
Troy grains	...	10·370542	,,	9·33348	10·714112 ,,

MONEY TABLE.
100 cents = 1 guilder.

MONEY WEIGHT TABLE.
See FRANCE.

The constant 1653·4391, being divided by the price of 1 kilo. of silver in guilders, gives the ratio between the metals.

A kilogram of pure gold is coined into 165·3439 pieces of 10 guilders each. The Bank of Holland ordinarily buys pure gold at 1647 florins per kilo., and sells it at 1653 florins per kilo. It also sells coins at 1658 florins per kilo. Coinage charge is 5 florins per kilo. on double ducat, ·37 per cent.; on ducat, ·43 per cent.; on 10 guilders, ·337 per cent. The tolerance in fineness is 1·5 per mille; on weight, 2 per mille. Gold and silver are sold per kilo. of pure metal.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Gulden	10		S.C.	60·48	decigrams	93·3	troy grains
,,	$5\frac{3}{4}$	gold	T.C.	34·34	,,	53·03	,,
,,	$2\frac{1}{2}$	silver	T.C.	15·12	,,	23·33	,,
,,	1	,,	,,	6·04	,,	9·33	,,
,,	$\frac{1}{2}$	,,	,,	3·02	,,	4·66	,,
Cents	$25\frac{1}{4}$	,,	,,	1·51	,,	2·33	,,
,,	$10\frac{1}{10}$	,,	,,	·60	,,	·93	,,
,,	$5\frac{1}{20}$	,,	,,	·30	,,	·46	,,
,,	$1\frac{1}{100}$	bronze	,,	·060	,,	·093	,,
,,	$\frac{1}{2}\frac{1}{200}$			·034	,,	·046	,,
,,	$\frac{1}{4}\frac{1}{400}$			·015	,,	·023	,,
	$\frac{1}{8}\frac{1}{800}$			·0075	,,	·012	,,
	$\frac{1}{16}\frac{1}{1600}$			·0037	,,	·0060	,,
	$\frac{1}{32}\frac{1}{3200}$			·0018	,,	·0030	,,
	$\frac{1}{64}\frac{1}{6400}$			·00094	,,	·0015	,,

XII. CHILIAN MONETARY SYSTEM.

Condor.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.
Decigrams	5·991035	$\frac{11}{12}$	5·49178208	18·209025
Troy grains	9·24557872	„	8·4751138	11·793352

MONEY TABLE.

100 centavos = 1 condor.

MONEY WEIGHT TABLE.

See FRANCE.

Gold and silver are sold by the kilogram. The constant 1820·9026 condors, being divided by the price in condors, will give the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Condor	20	S.C.	109·8356416	decigrams	169·502276	troy grns.
„	10	„	54·9178208	„	84·751138	„
„	5	„	27·4589104	„	42·375569	„
„	1	T.C. silver	5·49	„	8·47	„
Centavos	$50\frac{1}{2}$		2·79	„	4·24	„
„	$25\frac{1}{4}$		1·39	„	2·118	„
„	$20\frac{1}{5}$		1·098	„	1·69	„
„	$10\frac{1}{10}$		·5591	„	·85	„
„	$5\frac{1}{20}$		·27	„	·42	„
„	$2\frac{1}{2}\frac{1}{40}$		·14	„	·21	„
„	$1\frac{1}{100}$		·05	„	·084	„
	$\frac{1}{2}\frac{1}{200}$		·027	„	·042	„
	$\frac{1}{4}\frac{1}{400}$		·014	„	·021	„
	$\frac{1}{8}\frac{1}{800}$		·0068	„	·0105	„
	$\frac{1}{16}\frac{1}{1600}$		·0034	„	·0053	„
	$\frac{1}{32}\frac{1}{3200}$		·00017	„	·0026	„
	$\frac{1}{64}\frac{1}{6400}$		·00085	„	·0013	„

XIII. BRITISH INDIA.

Rupee.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.
Decigrams ...	5·32537	$\frac{11}{12}$	4·88158784	3·277622 annas.
Troy grains ...	8·218312	„	7·53344	2·123863 „

MONEY TABLE.

12 pies = 1 anna
16 annas = 1 rupee

MONEY WEIGHT TABLE.

	Decigrams.	Troy grains.
1 punk	·07593623	·1171875
4 punks = 1 dhan	·30374493	·46875
4 dhans = 1 ruttee	1·21497972	1·875
8 ruttees = 1 masha	9·71983773	15·
12 mashas = 1 tola	116·6380528	180·

Gold and silver are sold per tola, or 116·63805 decigrams, or 180 troy grains. Since 96 ruttees equal 1 tola,

1 decigram = ·8230590075 ruttee.
1 troy grain = ·5333333333 „
1 ruttee = 1·2149797170 decigram.
„ = 1·8750000000 troy grain.

The constant 382·29546 annas, being divided by the price of silver of the day in annas, gives the ratio between the metals.

PRESENT AND THE PROJECTED GOLD COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

			Decigrams	Troy grains
Rupees	30 double mohurs	S.C.	3207·546	4950·
„	15 „	„	1603·773	2475·
„	$10\frac{2}{3}$ „	„	320·754	495·
„	$5\frac{1}{3}$ „	„	160·377	247·5
„	1	„	4·881	7·533
„	1 silver	T.C.	4·881	7·533
Annas	$8\frac{1}{2}$ „	„	2·441	3·766
„	$4\frac{1}{4}$ „	„	1·22	1·88
„	$2\frac{1}{8}$ „	„	·61	·94
„	$1\frac{1}{16}$		·30	·47
Pice	6 pies $\frac{1}{32}$ bronze	„	·15	·23
„	3 „ $\frac{1}{64}$ „	„	·076	·117
„	8 „ $\frac{1}{24}$ „	„	·20	·31
Pie	1 „ $\frac{1}{192}$		·025	·039
„	$\frac{1}{2}$ „ $\frac{1}{384}$		·0127	·019
„	$\frac{1}{4}$ „ $\frac{1}{768}$		·00635	·0098
„	$\frac{1}{8}$ „ $\frac{1}{1536}$		·003175	·0049
„	$\frac{1}{16}$ „ $\frac{1}{3072}$		·00158	·0024
„	$\frac{1}{32}$ „ $\frac{1}{6144}$		·00079	·0012
„	$\frac{1}{64}$ „ $\frac{1}{12288}$		·00039	·00061

Silver Rupee.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	116·638	$\frac{11}{12}$	106·918215	1·79576 pies.
Troy grains ...	180·	„	165	1·163636 „

On June 26th, 1893, an Act was passed by the Council of the Governor-General of India, with the approval of the British Cabinet, which abolished India's effective silver standard cum-coinage charge system. By the same Act a mythical gold rupee was projected, and the mints of India were closed against the reception of silver from the public, whilst the purchase of silver and the coinage of rupees of

165 grains of pure silver in each may be effected at the discretion of the State. Subsequently an import duty of 5 per cent. was imposed on silver. Silver rupees continue to be unlimited legal tender. The aim is for India to become possessed of an effective gold monetary system with a gold rupee as the chief measure of value, fifteen of these gold rupees to contain the same weight of pure gold as is contained in one sovereign. If nothing intervenes, the success of this measure hangs upon the accumulation of gold by the Government of India. If a stock of gold is made dependent upon the ratio between the whole import and export trade of India, it is likely to occupy a long time before the standard will be anything but mythical, even under the most favourable circumstances. If the current of trade should change the position, the Governments of India and the British Isles would become worse off than they would have been under the continuous silver standard.

Till the breakdown in theory and practice of local dual standards in 1873, ten rupees were roughly taken as equal to a British sovereign, and one and a half penny as one anna. Under this system one anna and one penny indicate the same weight of pure gold. British India at present has no standard.

XIV. SCANDINAVIAN MONETARY SYSTEM.

Crown.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.	
Decigrams	4·4803	$\frac{9}{10}$	4·03225806	24·8	ores.
Troy grains	6·9141	„	6·22274277	16·07014	„

MONEY TABLE.
100 ores = 1 crown.

MONEY WEIGHT TABLE.
See FRANCE and Danish mark.

The constant 1240, divided by the price of ½ kilo. of silver in crowns, gives the ratio between the metals.

One kilo. of fine gold is coined into 248 10-crown pieces, or 124 20-crown pieces. The coinage charge is—for 20-crown pieces, ¼ per cent.; for 10-crown pieces, ⅓ per cent. Tolerance 1½ to 2 per mille. The Danish National Bank ordinarily

buys gold at 2480 crowns per kilo., fine, less $\frac{1}{4}$ per cent. Gold and silver are bought and sold by the Danish mark of 8 unsers, or 16 lods, or 256 orts, equal to 235·294 grams, or 3631·139 troy grains.

The constant 1240·0, being divided by the Scandinavian price in crowns for $\frac{1}{2}$ kilo. of silver, gives the ratio of silver to gold.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

Crowns	20	S.C.	80·64	decigrams	124·45	troy grains
„	10	„	40·32	„	62·22	„
„ silver	2	T.C.	8·06	„	12·44	„
Ores „	100	„	4·03	„	6·22	„
„ „	$50\frac{1}{2}$	„	2·01	„	3·11	„
„ „	$40\frac{2}{5}$	„	1·61	„	2·48	„
„ „	$25\frac{1}{4}$	„	1·01	„	1·55	„
„ „	$10\frac{1}{10}$	„	·40	„	·622	„
„ bronze	$5\frac{1}{20}$	„	·20	„	·311	„
„ „	$2\frac{1}{50}$	„	·081	„	·124	„
„ „	$1\frac{1}{100}$	„	·0403	„	·0622	„
	$\frac{1}{2}\ \frac{1}{200}$		·020	„	·047	„
	$\frac{1}{4}\ \frac{1}{400}$		·010	„	·023	„
	$\frac{1}{8}\ \frac{1}{800}$		·0050	„	·0118	„
	$\frac{1}{16}\ \frac{1}{1600}$		·0025	„	·0059	„
	$\frac{1}{32}\ \frac{1}{3200}$		·0012	„	·0029	„
	$\frac{1}{64}\ \frac{1}{64000}$		·00062	„	·0015	„

This is the monetary system of the Faroe Isles, Greenland, Iceland, St. Croix, St. John, and St. Thomas.

XV. GERMAN MONETARY SYSTEM.

Mark.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.
Decigrams ...	3·9825	$\frac{9}{10}$	3·584225806	27·900043 pfennigs.
Troy grains ...	6·1458	„	5·53134	18·078906 „

MONEY TABLE.

100 pfennigs = 1 mark.

MONEY WEIGHT TABLE.

Same as France.

The constant 1395·00213 being divided by the price in marks for $\frac{1}{2}$ kilo. of silver, gives the ratio between the metals.

A zollverein pound, or 500 grams, or 7716·17437 troy

grains of standard gold is coined into 125·55 10-mark pieces. 500 grams of pure gold is coined into 139½ 10-mark pieces. Coinage charge on gold, 3 marks per pound of pure gold. Tolerance, 2½ per mille on 20 and 10-mark pieces, 4 per mille on 5-mark pieces. Gold and silver sold by the ½ kilo. of pure metal. Gold coins having lost 5 per mille of their weight cease to be legal tender. The Treasury, however, receives them at full value. The old silver thaler pieces are still unlimited legal tender. Other silver coins are only legal tender for 20 marks in one payment. The Imperial Bank of Germany ordinarily buys a pound of pure gold at 1392 marks, provided the minimum weight of a bar is 5 pounds, and the fineness not less than 900 in 1000 parts.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

20	reichmarks		gold S.C.	71·68	decigrams	110·62	troy grains
10	,,		,, ,,	35·84	,,	55·31	,,
5	,,		silver T.C.	17·92	,,	27·65	,,
2	,,		,, ,,	7·16	,,	11·06	,,
1	mark		,, ,,	3·58	,,	5·53	,,
50	pfennigs	½	,, ,,	1·79	,,	2·76	,,
20	,,	1/5	nickel	·71	,,	1·11	,,
10	,,	1/10	,,	·35	,,	·55	,,
5	,,	1/20	,,	·17	,,	·27	,,
2	,,	1/50	bronze	·071	,,	·11	,,
1	,,	1/100	,,	·035	,,	·055	,,
½	,,	1/200		·0179	,,	·027	,,
¼	,,	1/400		·0089	,,	·013	,,
⅛	,,	1/800		·0044	,,	·0069	,,
1/16	,,	1/1600		·0022	,,	·0034	,,
1/32	,,	1/3200		·0011	,,	·0017	,,
1/64	,,	1/6400		·00056	,,	·00086	,,

This is the monetary system of the Dama and Nama Coast, the Hinterland of Africa, New Guinea, and Togoland.

XVI. AUSTRIA-HUNGARIAN MONETARY SYSTEM.

Crown.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.	
Decigrams ...	3·3875338	9/10	3·0487804 87	32·8	hellers.
Troy grains	5·2277616	,,	4·7049864	21·254048	,,

MONEY TABLE.

100 kreutzers = 1 florin, old.
100 hellers = 1 crown, new.

MONEY WEIGHT TABLE.

Same as France.

There is an impresssion that the pure gold in the crown is one half of that contained in the florin. Accepting Mr. Muhleman, of the United States Treasury, as a careful and reliable guide, the pure gold in the $\frac{1}{2}$ florin appears to be 19·03 per cent more than in the crown. The florin is given as 8·065 decigrams, $\frac{9}{10}$ fine; pure gold 7·2585 decigrams, $\frac{1}{2}$ 3·6292 decigrams. Gold and silver are sold per 500 grams. The constant 1640, divided by the price of silver in crowns, gives the ratio between gold and silver.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

8	gulden			58·06	decigrams	89·60	troy grains
4	,,			29·03	,,	44·80	,,
1	crown		S.C.	3·04	,,	4·70	,,
50	hellers	$\frac{1}{2}$	T.C.	1·52	,,	2·35	,,
25	,,	$\frac{1}{4}$	,,	·76	,,	1·17	,,
20	,,	$\frac{1}{5}$	,,	·61	,,	·94	,,
10	,,	$\frac{1}{10}$	,,	·30	,,	·47	,,
5	,,	$\frac{1}{20}$	,,	·15	,,	·23	,,
$2\frac{1}{2}$	,,	$\frac{1}{40}$	,,	·076	,,	·12	,,
1	,,	$\frac{1}{100}$	,,	·030	,,	·047	,,
$\frac{1}{2}$	,,	$\frac{1}{100}$	,,	·015	,,	·023	,,
$\frac{1}{4}$	,,	$\frac{1}{200}$		·0076	,,	·0117	,,
$\frac{1}{8}$	,,	$\frac{1}{800}$		·0038	,,	·0058	,,
$\frac{1}{16}$	,,	$\frac{1}{1600}$		·0019	,,	·0029	,,
$\frac{1}{32}$	,,	$\frac{1}{3200}$		·00095	,,	·0014	,,
$\frac{1}{64}$	,,	$\frac{1}{6400}$		·00047	,,	·00073	,,

The silver crown in the new coinage of 5 grams 835 fineness institutes a ratio of 13·69 to 1 between the metals. Noback gives the weight of the Maria Theresa or Levantine thaler as 280·668 decigrams 833·333 fineness, 233·89 decigrams of pure silver.

Silver Florin or Gulden.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	123·457	$\frac{9}{10}$	111·1111	9·00 kreutzers.
Troy grains ...	190·5231	,,	171·4708	·5832 ,,

XVII. FRENCH MONETARY SYSTEM.

Franc.

	Gross.	Fineness.	Pure gold.	Monetary sign for ·1.
Decigrams ...	3·22581	$\frac{9}{10}$	2·903225806	34·444444 centimes.
Troy grains ...	4·978128	,,	4·480359	22·31964 ,,

MONEY TABLE.

100 centimes = 1 franc.

MONEY WEIGHT TABLE.

	1 centigram	·15432	troy grains
10 centigrams =	1 decigram	1·54323	„
10 decigrams =	1 gram	15·43235	„
10 grams =	1 dekagram	154·32356	„
10 dekagrams =	1 hectogram	1543·23563	„
10 hectogram =	1 kilogram	15432·35639	„

The constant 3444·4444, being divided by the price of one kilogram of silver, gives the ratio between the two metals. One kilo. of gold $\frac{9}{10}$ fine is coined into 3100 francs. One kilo. of pure gold is coined into 3444·4444 francs. The remedy is $\frac{1}{1000}$ for weight and $\frac{1}{500}$ for fineness on 20 and 10 franc pieces, and on 5 franc pieces $\frac{3}{1000}$ for weight and $\frac{1}{500}$ for fineness. The mint buys gold bars of 900 fineness at 3093·30 francs per kilo., making the mintage charge 6·7 francs per kilo.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

SIGNS AND PURE GOLD.

100	francs	S.C.			290·3	decigrams	448·03	troy grains
50	„	„			145·51	„	224·01	„
40	„	„			116·13	„	179·21	„
20	„	„			58·06	„	89·60	„
10	„	„			29·03	„	44·80	„
5	„	„			14·51	„	22·40	„
5	„	T.C.	silver		14·51	„	22·40	„
2	„	„	„		5·80	„	8·96	„
1	„	„	„		2·90	„	4·48	„
50	centimes	„		$\frac{1}{2}$	1·45	„	2·24	„
20	„	„		$\frac{1}{5}$	·58	„	·89	„
10	„	„	bronze	$\frac{1}{10}$	·29	„	·49	„
5	„	„	„	$\frac{1}{20}$	·14	„	·24	„
2	„			$\frac{1}{50}$	·058	„	·089	„
1	„			$\frac{1}{100}$	·029	„	·044	„
$\frac{1}{2}$	„			$\frac{1}{200}$	·014	„	·022	„
$\frac{1}{4}$	„			$\frac{1}{400}$	·0072	„	·011	„
$\frac{1}{8}$	„			$\frac{1}{800}$	·0036	„	·0056	„
$\frac{1}{16}$	„			$\frac{1}{1600}$	·0018	„	·0028	„
$\frac{1}{32}$	„			$\frac{1}{3200}$	·00090	„	·0014	„
$\frac{1}{64}$	„			$\frac{1}{6400}$	·00045	„	·00070	„

The states forming the Latin Union are France, Italy, Belgium, Switzerland, and Greece. The weight of pure gold

in the franc under that or some other name, or five times the weight of the pure gold in the franc, form the monetary systems of Spain,* Roumania, Bulgaria, Servia, and Finland in Europe; the Argentine Republic,* Venezuela, U.S. of Columbia,* Ecuador,* Peru,* Bolivia,* and Paraguay* in South America; Costa Rica,* Nicaragua,* Honduras,* Salvador,* and Guatemala* in Central America. To quote from Mr. M. L. Muhleman's valuable book, "Monetary Systems of the World," New York, 1896, in which the greatest pains have been taken to give the all-important matter of weights of pure gold or silver forming the chief moneys of account of the world:—"France also provides coins for its colonial possessions, Algiers, Tunis, Madagascar, and Cochin China; for the latter in pieces denominated piastres or dollars and cents (see under Asia post). The other possessions of France—Martinique and Guadaloupe in the W. Indies, St. Pierre and Miquelan near Newfoundland, Pondichery in India, Guiana in S. America, and the Island of Réunion in the Indian Ocean—require very little coin. A special coinage of 1·00-franc pieces is occasionally struck for Monaco."

SECTION II.

THE WORLD'S EIGHT SILVER MONETARY SYSTEMS

And a Constant Attached to Each to Determine the Ratio between Gold and Silver on the Market Price of Gold of the Day.

TABLE XIII.

Silver Monetary Systems, etc.

Weights by which pure silver and pure gold are sold in the world's silver monetary systems. Also monetary signs for 1 kilogram, 1 lb. avoirdupois, and 1 troy ounce of pure silver.

Name of System.	Name of Weight.	Grams.	Monetary sign for Name of Weight.	Monetary sign for 1 kilogram.	Monetary sign for 7000 troy grains, or 4535·9242768 decigrams.	Monetary sign for 480 troy grains, or 311·085807 decigrams.
I. Shanghae ...	Tael	= 37·799368	T. 1·12959441	T. 29·884163	T. 13·555232	T. ·929504
II. Mexican ...	Kilogram	= 1000	P. 40·915	P. 40·915	P. 18·558739	P. 1·272602
III. Japanese ...	1 kaume, or 1000 momme	= 375	Y. 154·56872	Y. 41·2189	Y. 18·696 81	Y. 1·282055
IV. Javanese ...	Troy mark	= 246·107291	R.D. 10·417266	R.D. 42·328041	R.D. 19·2	R.D. 1·31655
V. Philippinese ...	Tael	= 269·298018	$11·526152	$42·800890	$19·414159	$1·331261
VI. Columbian, U.S.	Kilogram	= 1000	$44·444444	$44·444444	$20·159667	$1·382381
VII. Bolivian ...	„	= „	B. 49·382	B. 49·382	B. 22·399643	B. 1·535979
VIII. Russian ...	Zolotnick	= 4·265798	K. 23·704	R. 55·562038	R. 25·20504	R. 1·728351
IX. Siamese ...	Tical	= 15·292544	T. 1·042823	T. 68·199146	T. 31	T. 2·121433
X. Austrian ...	½ kilogram	= 500	Fl. 45	Fl. 90	Fl. 40·823318	Fl. 2·791222
XI. British Indian ...	Tola	= 11·663805	R. 1·09090)	R. 93·529433	R. 42·424242	R. 2·909100
XII. Persian ...	Miscal	= 4·538516	K. 1·095470	K. 241·372015	K. 109·484485	K. 7·417533

THE WORLD'S EIGHT PRESENT SILVER MONETARY SYSTEMS.

I. CHINESE MONETARY SYSTEM.

Shanghae tael.

		Pure silver.	Monetary sign of 1 decigram and 1 grain.
Decigrams	...	334·6254	2·988416 cash
Troy grains	...	516·4058422	1·93646 „

MONEY TABLE.

1000 cash = 1 tael weight.
10 cash or le = 1 candareen or fun.
10 candareens = 1 mace or tsein.
10 mace = 1 tael or liang.

MONEY WEIGHT TABLE.

10 hu = 1 ssu 10 li = 1 fen.
10 ssu = 1 hao 10 fen = 1 ch'ien.
10 hao = 1 li 10 ch'ien = 1 liang.

Gold and silver are sold by the tael or liang, or 377·9936897375 decigrams, or 583·3333333333 troy grains. Since 1000 li equal one tael or liang,

1 decigram = 2·6455468098 li
1 troy grain = 1·7142857143 li
1 li = ·3779936897 decigram
1 li = ·5833333333 troy grain

The constant 1·1296023 tael used as a divisor of the price of gold in taels will give the ratio.

By reference to page 39 the result of the painstaking work of the mint department of the U.S.A. N.A. in giving the various U.S.A. values of 14 descriptions of Chinese tael weights of silver will be seen. After consultation with all the best authorities, the writer has taken the weights given above as those which govern the exchanges between this country and Shanghae. Taking the grains of pure silver in the Shanghae tael as 516·4058422, it will be seen that it differs from that given in his last edition, viz. 513·0572. This is an excess of 6½ per mille.

Various European weights for weighment of silver in Shanghae are given in the current cambists. However, in

Browne's fourth edition of the "Merchant's Hand Book" 583·3 is given. In 1873 the Calcutta mint authorities gave the weight of pure silver in the Shanghae tael as 508·5 troy grains. The general manager of the late New Oriental Bank Corporation, Limited, who took an intelligent and uncommon interest in the subject, made the weight 518·56 troy grains. The above weight of 513·0572 troy grains of pure silver is thus reached: 717 Canton taels weigh 1000 new and true Mexican dollars, of 377,058 troy grains of pure silver each; 102½ Shangae taels equal 100 Canton taels; the 1000 Mexican dollars therefore weigh 734·92 Shanghae taels. The pure silver in 1000 Mexican dollars divided by this gives 513·0572 troy grains of pure silver. Tate's Cambist gives a Shanghae tael as equal to 1·3937 Mexican dollars, or 525·5065 troy grains of pure silver; also 75 taels or 100 Mexican dollars, or 502·7448 troy grains of pure silver. Haupt, in his Cambist, under the heads "China," "Shanghae," "Hongkong," "Vienna," gives information which makes the weight of pure silver in a Shanghae tael 508·1175, 515·9825, 518·0659, and 523·5458. Among the facsimiles of coins published in 1875 by Verlag von L. Vangerow, there is a circular Chinese tael with characters on both sides valued at fr. 8.12 c., or 563·88 troy grains of pure silver. Under the head of "Anam" are two oblong pieces of silver called taels with characters upon both sides, and valued at fr. 8.50 c. each, or 590·28 troy grains of pure silver; another valued at fr. 6.75 c., or 468·75 troy grains of pure silver; and a fourth at fr. 3.37 c., or 234·03 troy grains of pure silver. These French prices are taken at the proportion of 15½ parts of silver to 1 part of gold. A Shanghae tael struck at the Hongkong mint in 1867, having on it the words "One Tael Shanghae and Hongkong," and the figures "982—G 566," was but a specimen coin, which, however, the late Major Kinder, Director of that mint, suggested as convenient for circulation in Hongkong and China. The first number on the coin is the fineness, and the second the weight in troy grains. The weight of pure silver in this coin was therefore 554·4018 troy grains. China has recently erected the largest mint in the world. The tael

coin, to command circulation, for the basis of the Shanghae tael, should not contain more than 513 troy grains of pure silver. Any new dollar to compete with the Mexican peso should not contain less than 377·18098 troy grains.

It is affirmed that the Chinese are preparing to coin a dollar which is to be $\frac{72}{100}$ of the Kuping tael. This tael is 371·806 decigrams, $\frac{7}{100}$ of this is 267·70032 decigrams, or 413·1246743 troy grains at $\frac{9}{10}$ fineness; this gives 371·812207 troy grains as the weight of pure silver in the new dollar.

II. MEXICAN MONETARY SYSTEM.

Peso or dollar.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	270·73	902·778	244·4091849	·40915 centavos.
Troy grains ...	417·7847	„	377·180980	·26512 „

MONEY TABLE.

100 centavos = 1 peso or dollar.

MONEY WEIGHT TABLE.

See FRANCE.

Gold and silver are sold per kilogram. The price of gold in pesos being divided by 40·914994 gives the ratio between the metals. A troy ounce of Mexican dollars contains 433·33 grains of pure silver. The pure silver in the British standard ounce being 440 troy grains, it is $1\frac{1}{2}$ per cent. heavier than the ounce of Mexican dollars.

COINS AND MONEYS OF ACCOUNT.
S.C., Standard; T.C. Token Coins.

			PURE SILVER.		
Peso or dollar 1	S.C.	244·409	decigrams	377·181	troy grains
50 centavos „ $\frac{1}{2}$	„	122·20	„	188·59	„
25 „ $\frac{1}{4}$	„	61·10	„	94·29	„
20 „ piastre $\frac{1}{5}$	„	48·88	„	77·43	„
$12\frac{1}{2}$ „ real	„	30·55	„	47·15	„
10 „ $\frac{1}{10}$	„	24·44	„	37·718	„
5 „ $\frac{1}{20}$	„	12·22	„	18·86	„
$2\frac{1}{2}$ „ $\frac{1}{40}$	„	6·11	„	9·43	„
1 „ bronze $\frac{1}{100}$	„	2·44	„	3·77	„
$\frac{1}{2}$ $\frac{1}{200}$		1·22	„	1·88	„
$\frac{1}{4}$ $\frac{1}{400}$		·61	„	·94	„
$\frac{1}{8}$ $\frac{1}{800}$		·30	„	·47	„
$\frac{1}{16}$ $\frac{1}{1600}$		·15	„	·23	„
$\frac{1}{32}$ $\frac{1}{3200}$		·076	„	·117	„
$\frac{1}{64}$ $\frac{1}{6400}$		·038	„	·0589	„

The present coinage charge on the Mexican dollar is 2 per cent. It is one of the chief dollars of the East, and formerly, if not at present, governed the exchanges of Borneo, Labuan, Hongkong, Singapore, and many other places in the Pacific Ocean. The gold coins are 1 peso or dollar, 16·88 decigrams, 875 fineness; this is the sixteenth of a doubloon; there are doubloons, $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ of a 16-doubloon piece: 16, 8, 4, and 2 dollars respectively.

III. JAVANESE MONETARY SYSTEM.

Rix dollar or 2½ florin or guilder.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	250·	945	236·25	·42328 cents.
Troy grains ...	385·80875	,,	364·58925	·2743 ,,

MONEY TABLE.

100 cents or doits = 1 florin.

MONEY WEIGHT TABLE.

See FRANCE.

Gold is sold per kilogram. The constant 42·328442 rix dollars used as the divisor of the gold price of silver in rix dollars will give the ratio.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C., Token Coins.

2½	guilder	S.C.	236·25	decigrams	364·59	troy grains
1	florin	,,	94·5	,,	145·83	,,
50 doits	½ ,,		47·25	,,	72·92	,,
25 ,,	¼ ,,		23·625	,,	36·45	,,
10 ,,	$\frac{1}{10}$,,		9·45	,,	14·58	,,
5 ,,	$\frac{1}{20}$,,		4·725	,,	7·29	,,
2½ ,,	$\frac{1}{40}$ bronze		2·362	,,	3·64	,,
1 ,,	$\frac{1}{100}$		·945	,,	1·46	,,
½ ,,	$\frac{1}{200}$		·472	,,	·73	,,
¼ ,,	$\frac{1}{400}$		·236	,,	·365	,,
$\frac{1}{10}$,,	$\frac{1}{800}$		·118	,,	·182	,,
$\frac{1}{32}$,,	$\frac{1}{1600}$		·059	,,	·091	,,
$\frac{1}{64}$,,	$\frac{1}{3200}$		·029	,,	·045	,,

It was after this description of currency that the Indian Currency Committee of 1892-3 appeared to yearn. No one informed the examiners—some of the examinees surely must have known—that in modern commerce the most liquid wealth of a people is their standard substance and measure of value, provided, as happened at the period referred to, the substance used as money and for other objects is in extensive

internal and international demand by many countries. The inhabitants of the Dutch East Indies were parting with their value-giving factors in this, that, and other things for a silver currency supplied by Holland at 15·6 parts of silver to 1 part of gold, when the world-wide ratio was 26 to 1, and now the ratio is 34 to 1, and they are still paying for it at the rate of 15·6 to 1 in such things as they can part with for any requisite increase in their currency. The result of such practice is that the currency has a fictitious value of from 66½ to 118 per cent. higher than countries possessing unfettered and unfavoured silver currencies. Java, &c., compared with such countries, is thus heavily handicapped in competition with their intercolonial and international imports and exports. The present silver-cum-counter currency systems are abortions akin to inconvertible paper based on gold and inconvertible paper based on silver, and dissolve into will-with-a-wisp before the light of the science of money.

IV. PHILIPPINE ISLES MONETARY SYSTEM.

Dollar.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	259·6	$\frac{9}{10}$	233·64	·428001 cents.
Troy grains ...	400·6253	,,	360·5628	·2773 ,,

MONEY TABLE.

100 centavos = 1 dollar.
also 100 ,, = 4 real.
8 reals = 1 dollar.

WEIGHT TABLE.

See FRANCE.

The price in Spanish dollars for 1 kilo of gold, being divided by the constant 42·800906, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; and T.C., Token Coins.

Dollar	S.C.	233·64	decigrams	360·56	troy grains
,, $\frac{1}{2}$		116·82	,,	180·28	,,
,, $\frac{1}{4}$		58·41	,,	90·14	,,
Cents 1	$\frac{1}{100}$	2·34	,,	3·60	,,
$\frac{1}{2}$	$\frac{1}{200}$	1·67	,,	·180	,,
$\frac{1}{4}$	$\frac{1}{400}$	·58	,,	·90	,,
$\frac{1}{8}$	$\frac{1}{800}$	·29	,,	·45	,,
$\frac{1}{16}$	$\frac{1}{1600}$	·14	,,	·23	,,
$\frac{1}{32}$	$\frac{1}{3200}$	·072	,,	·11	,,
$\frac{1}{64}$	$\frac{1}{6400}$	·036	,,	.057	,

Spain is supplying counters for the internal interchanges of these islands. There is no gold circulation or reserves in any of them. Manila has a mint, and used to coin gold. The exchanges with the Western world are worked on the Mexican dollar through Hongkong. Among the islands belonging to Spain are Penang, Manila, Marran Isle, and Timan.

V. COLUMBIAN, U.S., MONETARY SYSTEM

Sol or dollar.

	Gross.	Fineness.	Pure Silver.	Monetary sign for ·1.
Decigrams ...	250·	$\frac{9}{10}$	225	·4444 cents.
Troy grains ...	385·86469	,,	347·2278	·2880 ,,

MONEY TABLE.
120 centesimos = 1 sol or dollar.

MONEY WEIGHT TABLE.
See FRANCE.

The price of 1 kilo. of gold, being divided by the constant 44·444444, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.
S.C., Standard; T.C., Token Coins.

Sol or dollar		1	S.C.	225	decigrams	347·227	troy grains
Centesimos	50	$\frac{1}{2}$	,,	112·5	,,	178·61	,,
,,	20	$\frac{1}{5}$	T.C.	45	,,	69·44	,,
,,	10	$\frac{1}{10}$	,,	22·5	,,	34·72	,,
,,	5	$\frac{1}{20}$	,,	11·25	,,	17·36	,,
,,	$2\frac{1}{2}$	$\frac{1}{40}$	,,	5·62	,,	3·47	,,
,,	1	$\frac{1}{100}$	bronze	2·25	,,	1·73	,,
,,	$\frac{1}{2}$	$\frac{1}{200}$	,,	1·12	,,	·868	,,
,,	$\frac{1}{4}$	$\frac{1}{400}$		·56	,,	·434	,,
,,	$\frac{1}{8}$	$\frac{1}{800}$		·28	,,	217	,,
,,	$\frac{1}{16}$	$\frac{1}{1600}$		·14	,,	108	,,
,,	$\frac{1}{32}$	$\frac{1}{3200}$		·070	,,	·054	,,
,,	$\frac{1}{64}$	$\frac{1}{6400}$		·035	,,	·027	,,

The pure gold in 5 sols is 112·01571 troy grains, or 7·2585 grams. There are gold coins of 20, 10, 2, and 1 sol, at the same proportion of pure gold as in the 5-sol piece. The silver peso and sol of South and Central America contain on issue from the mints five times the weight of pure silver in the franc. The silver franc is 45 decigrams, the peso and sol 225 decigrams. This latter weight is the coin used in

Argentina, Paraguay, Chili, Uruguay, Venezuela, Peru, U.S. Columbia, Ecuador, Guatemala, Honduras, Nicaragua, Costa Rica, and Salvador. The currency regulations in all these countries excepting Chili and Uruguay appoint a gold coin of five times the weight of the franc as a part of the circulation. The mint-issue weight of pure gold in the franc is 2·9032258 decigrams. The weight of pure gold in the peso and sol is 14·5161290 decigrams on issue from the mints. Some of these republics are discarding silver. Peru has closed its mints against it. Costa Rica has done the same, or is meditating it. Salvador has projected a gold weight, 16·129 decigrams, $\frac{9}{10}$ fine, for its chief money. This is the same weight as the Argentine chief money of account.

VI. BOLIVIAN MONETARY SYSTEM.

Boliviano.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	225·	$\frac{9}{10}$	202·5	·4938 centesimos.
Troy grains ...	347·22783	„	312·505046	·3200 „

MONEY TABLE.

100 centesimos = 1 boliviano.

MONEY WEIGHT TABLE.

See FRANCE.

The price of 1 kilo. of gold in bolivianos, divided by the constant 49·382716, gives the ratio between gold and silver.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C., Token Coins.

Boliviano		1	S.C.	202·5	decigrams	312·50504	troy grains
50 centavos		$\frac{1}{2}$	„	101·25	„	156·2525	„
20 „		$\frac{1}{5}$	„	40·5	„	62·5010	„
10 „		$\frac{1}{10}$	„	20·25	„	32·2505	„
5 „		$\frac{1}{20}$	„	10·12	„	15·625	„
10 „	nickel	$\frac{1}{10}$	T.C.	20·25	„	31·25	„
5 „	„	$\frac{1}{20}$	„	10·12	„	15·62	„
1 „	bronze	$\frac{1}{100}$	„	2·02	„	3·12	„
$\frac{1}{2}$ „	„	$\frac{1}{200}$	„	1·01	„	1·56	„
$\frac{1}{4}$ „		$\frac{1}{400}$		·505	„	·78	„
$\frac{1}{8}$ „		$\frac{1}{800}$		·252	„	·39	„
$\frac{1}{16}$ „		$\frac{1}{1600}$		·126	„	·195	„
$\frac{1}{32}$ „		$\frac{1}{3200}$		·063	„	·97	„
$\frac{1}{64}$ „		$\frac{1}{6400}$		·031	„	·48	„

VII. SIAMESE MONETARY SYSTEM.

Tical.

	Pure silver.	Monetary sign for ·1.
Decigrams ...	146·645531	·218213 phai-nungs.
Troy grains ...	226·300908	·1409 „

MONEY TABLE.

4 solots or pies = 1 phai-nung
4 phai-nungs = 1 fuang
2 fuangs = 1 solung
4 solungs = 1 tical or bat.

MONEY WEIGHT TABLE.

4 bats or ticals = 1 tael.

Gold and silver are sold per tical, or 152·9254470464 decigrams, or 236 troy grains. The constant 1·0428306 tical used as a divisor of the price of gold in ticals gives the ratio. Since 128 solots equal 1 tical,

1 decigram = ·8370091602 solot
1 troy grain = ·5423728814 „
1 solot = 1·1947300551 decigram
1 „ = 1·8437500000 troy grain.

Various weights of pure silver are given for the tical coin. Dr. Browne, in his 4th Edition of the "Merchants' Handbook," makes it 136·506 decigrams. "Tate's Cambist" gives the fine weight generally taken to be 138·585 decigrams. In Siam and in the Straits the money tical is $\frac{6}{10}$ of the Mexican dollar, which gives the weight above stated. Assays made at the Calcutta mint some years ago gave figures which represented the tical as $\frac{5471}{10000}$ of a Mexican dollar.

COINS AND MONEYS OF ACCOUNT.
S.C., Standard; T.C., Token Coins.

Tical	1	S.C.	146·6455	decigrams	226·3009	troy grains
Phai-nungs 16	$\frac{1}{2}$	„	73·3227	„	113·1504	„
„ 8	$\frac{1}{4}$		36·6613	„	56·5752	„
„ 4	$\frac{1}{8}$		18·3316	„	28·2876	„
„ 2	$\frac{1}{16}$		9·1658	„	14·1438	„
„ 1	$\frac{1}{32}$		4·58	„	7·07	„
„ $\frac{1}{2}$	$\frac{1}{64}$		2·29	„	3·53	„
Solot or pie 1	$\frac{1}{128}$		1·14	„	1·77	„
„ $\frac{1}{2}$	$\frac{1}{256}$		·57	„	·88	„
„ $\frac{1}{4}$	$\frac{1}{512}$		·28	„	·44	„
„ $\frac{1}{8}$	$\frac{1}{1024}$		·14	„	·22	„
„ $\frac{1}{16}$	$\frac{1}{2048}$		·072	„	·11	„
„ $\frac{1}{32}$	$\frac{1}{4096}$		·036	„	·055	„
„ $\frac{1}{64}$	$\frac{1}{8192}$		·018	„	·027	„

VIII. PERSIAN MONETARY SYSTEM.

Kran.

	Gross.	Fineness.	Pure silver.	Monetary sign for ·1.
Decigrams ...	46·0034	$\frac{9}{10}$	41·429836	·48274 shahis
Troy grains ...	71·04	„	63·936	·3128 „

MONEY TABLE.

50 dinars = 1 shahis or pessebat
20 shahis = 1 kran
10 krans = 1 toman.

MONEY WEIGHT TABLE.

4 gandums = 1 nakhod
4 nakhods = 1 dong
6 dongs = 1 miscal
2 miscals = 1 dirhem.

Gold and silver are sold per miscal, or 45·38516233 decigrams, or 70·04 troy grains. The constant 1·1111111 kran, used as a divisor of the price of gold in krans, will give the ratio. Since 96 gandums equal 1 miscal,

1 decigram = 2·1152287457 gandums
1 troy grain = 1·3706453455 „
1 gandum = ·4727621077 1 decigram
„ = ·7295833333 1 troy grain.

It is through the courtesy of the manager of the London Bank of Persia that the above and following information is furnished. A kran is a miscal in weight of silver with alloy; 37 troy ounces are coined into 250 miscals, therefore the weight of each kran is 71·04 troy grains, $\frac{9}{10}$ fine, gives 63·936 troy grains of pure silver in the kran. The present gold toman weighs 43·11 troy grains, 885 fine, 38·15235 fine gold. As there are 10 krans to a toman, these weights of pure gold and silver establish a ratio of 16·76 parts of silver to 1 part of gold.

COINS AND MONEYS OF ACCOUNT.
S.C., Standard; T.C., Token Coins.

Kran	1	S.C.	41·43 decigrams	63·94 troy grains	
10 shahis	$\frac{1}{2}$	„	20·71 „	31·97	„
5 „	$\frac{1}{4}$	„	10·36 „	15·98	„
1 „	$\frac{1}{20}$	T.C.	2·07 „	3·19	„
$\frac{2}{3}$ „ part bronze		„	1·38 „	2·13	„
$\frac{1}{2}$ „	$\frac{1}{40}$		1·03 „	1·598	„
25 dinars	$\frac{1}{40}$		1·03 „	1·598	„
20 „	$\frac{1}{50}$		·8382 „	1·278	„
10 „	$\frac{1}{100}$		·41 „	·639	„
5 „	$\frac{1}{200}$		·21 „	·319	„
$2\frac{1}{2}$ „	$\frac{1}{400}$		·103 „	·159	„
1 „	$\frac{1}{1000}$		·051 „	·079	„

SECTION III.

I. Rules and Examples for finding the Equivalent Premium to a Given Discount, and vice versâ.

II. For adjusting Exchange to an Invoice of Goods when Exchange is worked by Premium and Discount on the Whole Sum exchanged.

III. Multiples for the Conversion of Grams into Troy Grains.

IV. Conversion of Fractions into Decimals.

SECTION III.

RULES AND EXAMPLES FOR FINDING THE EQUIVALENT PREMIUM TO A GIVEN DISCOUNT, AND VICE VERSÂ.

ALL charges for coinage and those connected with the transmission of standard metal, &c., and which cause the deviation from par in rates of exchange, assume a form of percentage which can be deducted from or added to the fixed and absolute pars of exchange for any sum of money, or may be taken upon the total sum exchanged.

In the present mode of quoting and working the exchanges, the charges are expressed in the quoted rates.

EQUIVALENT PREMIUMS TO A GIVEN DISCOUNT.

I. Whenever a paper currency exists at a discount compared with the metal standard for which it should exchange at par, and it is desired to know the equivalent premium on the metal standard, an example of the method to find it is attached.

EXAMPLE I.—Say the paper currency is at a discount of *74·747* as compared with gold in the Argentine Republic, what is the percentage premium on the gold expressed in paper?

```
100
74·747
-------
25·253) 7·474·700 (296 per cent. premium.
        50506
        ------
        242410
        227277
        ------
         151330
         151518
         ======
```

EQUIVALENT DISCOUNT FOR A GIVEN PREMIUM.

EXAMPLE II.—Premium on gold in the Argentine Republic 296 per cent., at what percentage discount is the paper?

$$\frac{296 \times 100}{396} = 74{\cdot}747 \text{ per cent. discount.}$$

RULE FOR ADJUSTING EXCHANGE TO AN INVOICE OF GOODS WHEN EXCHANGE IS WORKED BY PREMIUM AND DISCOUNT ON ONE FACTOR.

Exchange is quoted in London on Melbourne at 3 per cent. discount (I.) for a 60 days' sight bill, or at 1 per cent. premium (II.) for a demand bill; what amount must be added to or deducted from the invoice to produce the amount of the invoice by the sale of the bill of exchange for the same?

RULE.—Multiply the invoice by 100, and divide the result by

(I.) 100 — the discount, if the exchange be at a discount.
(II.) 100 + the premium, if the exchange be at a premium.

The rate of discount on the first sum, or the rate of premium on the second sum, will bring the respective invoice amounts to the sums to be received from the purchaser of the bills, less the discount, or plus the premium.

TABLE OF MULTIPLES FOR THE CONVERSION OF DECIGRAMS INTO TROY GRAINS.

1 decigram =	I.	1·54323563905 troy grain
	II.	3·08647127810 ,,
	III.	4·62970691715 ,,
	IV.	6·17294255620 ,,
	V.	7·71617819525 ,,
	VI.	9·25941383430 ,,
	VII.	10·80264947335 ,,
	VIII.	12·34588511240 ,,
	IX.	13·88912075145 ,,

TABLE OF MULTIPLES FOR THE CONVERSION OF A TROY GRAIN INTO A DECIGRAM.

1 troy grain =	I.	·6479891824009 decigram
	II.	1·2959783648018 „
	III.	1·9439675472027 „
	IV.	2·5919567296036 „
	V.	3·2399459120045 „
	VI.	3·8879350944054 „
	VII.	4·5359242768063 „
	VIII.	5·1839134592072 „
	IX.	5·8319026416081 „

7000 troy grains equal 1 lb. avoirdupois.

TABLE XIV.

TABLE OF CONVERSION OF FRACTIONS INTO DECIMALS.

1/64	...	...	...	...	...	·015625	33/64	...	...	...	...	...	·515625
1/32	...	...	...	...	...	·03125	17/32	...	...	...	...	...	·53125
3/64	...	...	...	...	...	·046875	35/64	...	...	...	...	...	·546875
1/16	...	...	...	...	...	·0625	9/16	...	...	...	...	·5625
5/64	...	...	...	...	...	·078125	37/64	...	...	...	...	...	·578125
3/32	...	...	...	...	...	·09375	19/32	...	...	...	...	...	·59375
7/64	...	...	...	...	...	·109375	39/64	...	...	...	...	...	·609375
1/8	...	...	...	...	·125	5/8	...	...	...	·625
9/64	...	...	...	...	...	·140625	41/64	...	...	...	...	...	·640625
5/32	...	...	...	...	...	·15625	21/32	...	...	...	...	...	·65625
11/64	...	...	...	...	...	·171875	43/64	...	...	...	...	...	·671875
3/16	...	...	...	...	...	·1875	11/16	...	...	...	...	·6875
13/64	...	...	...	...	...	·203125	45/64	...	...	...	...	...	·703125
7/32	...	...	...	...	...	·21875	23/32	...	...	...	...	...	·71875
15/64	...	...	...	...	...	·234375	47/64	...	...	...	...	...	·734375
1/4	...	...	·25	3/4	...	·75
17/64	...	...	...	...	...	·265625	49/64	...	...	...	...	...	·765625
9/32	...	...	...	...	...	·28125	25/32	...	...	...	...	...	·78125
19/64	...	...	...	...	...	·296875	51/64	...	...	...	...	...	·796875
5/16	...	...	...	...	...	·3125	13/16	...	...	...	...	·8125
21/64	...	...	...	...	...	·328125	53/64	...	...	...	...	...	·828125
11/32	...	...	...	...	...	·34375	27/32	...	...	...	...	...	·84375
23/64	...	...	...	...	...	·359378	55/64	...	...	...	...	...	·859375
3/8	...	...	...	·375	7/8	...	...	·875
25/64	...	...	...	...	...	·390625	57/64	...	...	...	...	...	·890625
13/32	...	...	...	...	...	·40625	29/32	...	...	...	...	...	·90625
27/64	...	...	...	...	...	·421875	59/64	...	...	...	...	...	·921875
7/16	...	...	...	...	...	·4375	15/16	...	...	...	...	·9375
29/64	...	...	...	...	...	·453125	61/64	...	...	...	...	...	·953125
15/32	...	...	...	...	...	·46875	31/32	...	...	...	...	...	·96875
31/64	...	...	...	...	...	·484375	63/64	...	...	...	...	...	·984375
1/2	...	·5

TABLE XV.

THE FOLLOWING RATES OF EXCHANGE WERE QUOTED IN THE "TIMES" OF APRIL 9TH, 1897; THE RATIO OF SILVER TO 1 OF GOLD IN LONDON BEING 33·23.

EXCHANGE ON LONDON AT DATES APRIL 6TH.

Paris cheques ...	25f 13½c
Brussels „ ...	25f 17½c
Berlin, sight ...	20m 39pf
Vienna „ ...	11fl 95½
Amsterdam, sight ...	12fl 09¼
Italy „ ...	26 lire 53
Lisbon „ ...	36⅜ pence
St. Petersburg ...	93r 95
Bombay TT ...	15 3/32 pence
Calcutta „ ...	„
Hong Kong 4m sight ...	24¼ pence
Shanghae TT	33⅛ „
Yokohama 4m sight ...	24½ „
Rio de Janeiro ...	8 „
Valparaiso	17⅝ „
Buenos Ayres	196 per cent. premium
„ Paper dollar ...	16·08 pence

COURSE OF EXCHANGE APRIL 8TH, 1897.

Amsterdam and Rotterdam ...	12.1⅜ to 2⅜c
3 mos. ...	12.3¼ „ 4c
Antwerp and Brussels „ ...	25.28¾ „ 33¾c
Hamburg	20.53 „ 20.57
Berlin and German Bk. places ...	20.54 „ 20.58
Paris cheques	25.12½ „ 17½c
3 mos. ...	25.27½ „ 32½c
Marseilles „	25.27½ „ 32½
Austria „	12.10 „ 12.12½
Moscow „	25 „ 25⅛
St. Petersburg 3 mos. ...	25 1/16 „ 25 3/16
Genoa „	26.76¼ „ 86¼c
Leghorn „	„ „
Naples „	„ „
Madrid „	36 15/16 „ 37 3/16
Lisbon „	35 „ 35¼
Oporto „	„ „
Copenhagen „	18.32 „ 18.36
Christiania „	„ „
Stockholm „	„ „

These last are London quotations for drafts upon the countries named. It should be noticed that it is only between Russia and the British Isles that the exchanges are

worked upon the scientific principle ; the quotation in Russia is fluctuating roubles, &c., for one pound, and in the British Isles fluctuating pence for a rouble. Mist, confusion, and error are swept away by this mode of quoting and working the exchanges. There is no puzzle as to whether the quotation is to be worked as a multiplier or a divisor of the sum to be exchanged. No doubt instruction in the course of time will put the increasing mass of travellers upon an equal footing with the money-changers, to the benefit of the former and the chagrin of the latter.

SECTION IV.

Multiples of

198 FIGURES

which represent the Mint-issue Weight

in Decigrams

of Pure Metal composing

SEVENTEEN GOLD MEASURES OF VALUE.

Also

TWELVE SILVER MEASURES OF VALUE

and Chief Silver Moneys of Account of the World,

Twenty-nine Monetary Signs for One Decigram of

Pure Gold and Silver in Each System.

The Kilograms and Tonnage of 1,000,000 of each

of the Gold Measures of Value and each

of the Silver Measures of Value.

SECTION IV.

JUDGING by his own experience of the darkness he was in whilst for many years a worker of the colonial exchanges in India, compared with the light he now enjoys, the author cannot too highly recommend the working of all exchanges by weights of pure metal, not only for the accuracy of the method, but also for clearing the mind in preparation for the reception of the science of money.

Two examples of the use of these multiples may be given.

Desired to know the German monetary sign for the weight of pure gold indicated by £4365 in the British Isles. The formula is $\frac{113{\cdot}001605}{5{\cdot}531307}$ of £4365. Answer, 89,174·580 marks. The use of these multiples to the second decimal place in the tables furnishes a closely approximate answer. $\frac{113{\cdot}00}{5{\cdot}53}$ of £4365. Answer, 89,174·503 marks. This is not equal to that obtained by the use of the full multiples by about 1 per million marks.

The weights of the world's present and prospective gold and silver chief moneys of account are presented in decigrams, as more available for the whole world than in troy grains. The monetary sign for 1 decigram in each system is also given. The multiples of each in each system are given to facilitate the working of problems.

TABLE XVI.

GOLD MEASURES OF VALUE.

Multiples of decigrams and the monetary signs for 1 decigram of gold in each chief gold money of account in use[a] or intended to be used in the world.

	I. EGYPTIAN.[a]		II. BRITISH ISLES.[a]	
I.	74·375	13·445378 ochrs.	73·223817	3·277622 pence.
II.	148·750	26·890756 „	146·447635	6·555244 „
III.	223·125	40·336134 „	219·671453	9·832866 „
IV.	297·500	53·781512 „	292·895271	13·110488 „
V.	371·875	67·226890 „	366·119088	16·388110 „
VI.	446·250	80·672268 „	439·342906	19·665732 „
VII.	520·625	94·117646 „	512·566724	22·943354 „
VIII.	595·000	107·563024 „	585·790541	26·220976 „
IX.	669·375	121·008402 „	659·014359	29·498598 „

	III. TURKEY.[a]		IV. PORTUGAL.	
I.	66·146666	60·471678 piastres.	16·257083	61·511648 reis.
II.	132·293333	120·943356 „	32·514166	123·023296 „
III.	198·440000	181·415034 „	48·771250	184·534944 „
IV.	264·586666	248·886712 „	65·028333	246·046592 „
V.	330·733333	302·358390 „	81·285417	307·558240 „
VI.	396·880000	362·830068 „	97·542500	369·069888 „
VII.	463·026666	423·301746 „	113·799583	430·581536 „
VIII.	529·173333	483·773424 „	130·056667	492·093184 „
IX.	595·320000	544·245102 „	146·313750	553·604832 „

	V. URUGUAY.		VI. UNITED STATES N.A.[a]	
I.	15·56149	6·42612 cents.	15·046308	6·646148 cents.
II.	31·12298	12·85224 „	30·092617	13·292296 „
III.	46·68447	19·27836 „	45·138926	19·938444 „
IV.	62·24596	25·70448 „	60·185235	25·584592 „
V.	77·80745	32·13060 „	75·231544	33·230740 „
VI.	93·36894	38·55672 „	90·277852	39·876888 „
VII.	108·93043	44·98284 „	105·324161	46·523036 „
VIII.	124·49192	51·40896 „	120·370470	53·169184 „
IX.	140·05341	57·83508 „	135·416779	59·815332 „

	VII. ARGENTINA.		VIII. BRAZIL.	
I.	14·516129	6·88893 cents.	8·217791	121·687202 reis.
II.	29·032258	13·77786 „	16·435583	243·374404 „
III.	43·548387	20·66679 „	24·653375	365·061606 „
IV.	58·064516	27·55572 „	32·871166	486·748808 „
V.	72·580645	34·44465 „	41·088958	608·436010 „
VI.	87·096774	41·33358 „	49·306750	730·123212 „
VII.	101·612903	48·22251 „	57·524541	851·810414 „
VIII.	116·129032	55·11144 „	65·742333	973·497616 „
IX.	130·645161	62·00037 „	73·960125	1095·184818 „

	IX. RUSSIA.		X. JAPAN.	
I.	7·741206	12·917884 kopecks.	7·5	13·333333 sens.
II.	15·482412	25·835768 „	14·0	26·666666 „
III.	23·223618	38·753652 „	22·5	39·999999 „
IV.	30·964824	51·671536 „	30·0	53·333332 „
V.	38·706030	64·589420 „	37·5	66·666665 „
VI.	46·447236	77·507304 „	45·0	79·999998 „
VII.	54·188442	90·425188 „	52·5	93·333331 „
VIII.	61·929648	103·343072 „	60·0	106·666664 „
IX.	69·670854	116·260956 „	67·5	119·999997 „

XI. NETHERLANDS.[a]		XII. CHILI.	
I. 6·048	16·534391 cents.	5·491782	18·209025 cents.
II. 12·096	33·068782 „	10·983564	36·418050 „
III. 18·144	49·603173 „	16·475346	54·627075 „
IV. 24·192	66·137564 „	21·967128	72·836100 „
V. 30·240	82·671955 „	27·458910	91·045125 „
VI. 36·288	99·206346 „	32·950692	109·254150 „
VII. 42·336	115·740737 „	38·442474	127·463175 „
VIII. 48·384	132·257128 „	43·934256	145·672200 „
IX. 54·432	148·809519 „	49·426038	163·881225 „

XIII. BRITISH INDIA.		XIV. SCANDINAVIA.[a]	
I. 4·881587	3·277622 annas.	4·032258	24·8 ores.
II. 9·763175	6·555244 „	8·064516	49·6 „
III. 14·644763	9·832866 „	12·096774	74·4 „
IV. 19·526351	13·110488 „	16·129032	99·2 „
V. 24·407939	16·388110 „	20·161290	124·0 „
VI. 29·289527	19·665732 „	24·193548	148·8 „
VII. 34·171114	22·943354 „	28·225806	173·6 „
VIII. 39·052702	26·220976 „	32·258064	198·4 „
IX. 43·934290	29·498598 „	36·290322	223·2 „

XV. GERMANY.[a]		XVI. AUSTRIA-HUNGARY.	
I. 3·584224	27·900043 pfennigs.	3·048780	32·8 heller.
II. 7·168448	55·800086 „	6·097560	65·6 „
III. 10·752672	83·700129 „	9·146341	98·4 „
IV. 14·336896	111·600172 „	12·195121	131·2 „
V. 17·921120	139·500215 „	15·243902	164·0 „
VI. 21·505344	167·400258 „	18·292682	196·8 „
VII. 25·089568	195·300301 „	21·341463	229·6 „
VIII. 28·673792	223·200344 „	24·390243	262·4 „
IX. 32·258016	251·100387 „	27·439024	295·2 „

XVII. FRANCE[a]	
I. 2·903226	34·444444 centimes.
II. 5·806452	68·888888 „
III. 8·709678	103·333333 „
IV. 11·612904	137·777777 „
V. 14·516130	172·222222 „
VI. 17·419355	206·666666 „
VII. 20·322581	241·111111 „
VIII. 23·225807	275·555555 „
IX. 26·129033	309·999999 „

TABLE XVII.

Kilograms and tons of pure gold in 1,000,000 present and prospective chief standard gold moneys of account on issue from the mints in 19 gold monetary systems.

1000 kilograms = ·98420591 ton avoirdupois.

	Kilograms.	Tons.
I. Egyptian pound	7437·5	7·320032
II. British pound	7322·381772	7·206734
III. Turkish pound	6614·666667	6·510229
IV. Portuguese milreis	1625·70834	1·600003
V. Uruguay peso	1556·149	1·531568
VI. Newfoundland dollar	1525·497	1·501408
VII. United States N.A. dollar ...	1504·630881	1·479591
VIII. Argentine peso	1451·612903	1·428686
IX. Cuban „	1393·3	1·371294
X. Chilian „	1372·877	1·350822
XI. „ new condor	549·178208	·540504
XII. Russian rouble	1161·18	1·142840
XIII. „ „ new	774·1206	·761894
XIV. Brazilian milreis	821·779167	·808798
XV. Japanese yen	1500·	1·476309
XVI. „ „ new	750·	·738154
XVII. Austrian florin	609·75	·600119
XVIII. „ crown, new	304·878048	·300068
XIX. British India rupee	712·7866	·701528
XX. „ „ „ new	488·158784	·480448
XXI. Holland guilder	604·8	·595248
XXII. Scandinavia crown	403·225806	·396831
XXIII. Germany mark	358·422390	·352762
XXIV. France franc	290·322580	·285736

TABLE XVIII.

MEASURES OF VALUE AND TOKENS THAT ARE TO BE.[a]

Multiples of decigrams and the monetary signs for 1 decigram of silver in each chief silver money of account and tokens that are to be in the world.

I. SHANGHAE.

I.	334·6254	2·988416	cash.
II.	669·2508	5·976832	„
III.	1003·5762	8·965248	„
IV.	1338·5016	11·953664	„
V.	1673·1270	14·942080	„
VI.	2007·7524	17·930496	„
VII.	2342·3778	20·918912	„
VIII.	2677·0032	23·907328	„
IX.	3011·6286	26·895744	„

II. MEXICO.

244·409184	·40915	cents.
488·818369	·81830	„
733·227554	1·22745	„
977·636739	1·63660	„
1222·045924	2·04575	„
1466·455100	2·45490	„
1710·864294	2·86405	„
1955·273470	3·27320	„
2199·682664	3·68235	„

III. JAPAN.[a]

I.	242·60715	·41218	sens.
II.	485·21436	·82436	„
III.	727·82145	1·23655	„
IV.	970·42860	1·64873	„
V.	1213·03575	2·06092	„
VI.	1455·64290	2·47310	„
VII.	1698·25005	2·88528	„
VIII.	1940·85720	3·29747	„
IX.	2183·46435	3·70965	„

IV. JAVA.

236·25	·42328	cents.
472·50	·84656	„
708·75	1·26984	„
945·00	1·69312	„
1181·25	2·11640	„
1417·50	2·53968	„
1653·75	2·96296	„
1890·00	3·38624	„
2126·25	3·80952	„

V. PHILIPPINES.

I.	233·64	·428001	cents.
II.	467·28	·856002	„
III.	700·92	1·284003	„
IV.	934·56	1·712004	„
V.	1168·20	2·140005	„
VI.	1401·84	2·568006	„
VII.	1635·48	2·996007	„
VIII.	1869·12	3·424008	„
IX.	2102·76	3·852009	„

VI. COLUMBIA, U.S.

225·	·444444	cents.
450·	·888888	„
675·	1·333333	„
900·	1·777777	„
1125·	2·222222	„
1350·	2·666666	„
1575·	3·111111	„
1800·	3·555555	„
2025·	3·999999	„

VII. BOLIVIA.

I.	202·5	·49382	cents.
II.	405·0	·98764	„
III.	607·5	1·48146	„
IV.	810·0	1·97528	„
V.	1012·5	2·46910	„
VI.	1215·0	2·96292	„
VII.	1417·5	3·45674	„
VIII.	1620·0	3·95056	„
IX.	1822·5	4·44438	„

VIII. RUSSIA.[a]

179·960937	·555675	copecks.
359·921874	1·111350	„
539·882811	1·667025	„
719·843748	2·222700	„
899·804685	2·778375	„
1079·765622	3·334050	„
1259·726559	3·889725	„
1439·687496	4·425400	„
1619·648433	5·001075	„

	IX. SIAM.		X. AUSTRIA-HUNGARY.[a]	
I.	146·645531	·218213 phai-nungs.	111·111111	9· kreutzers.
II.	293·291062	·436426 „	222·222222	18· „
III.	439·936593	·654639 „	333·333333	27· „
IV.	586·582124	·872852 „	444·444444	36· „
V.	733·227655	1·091065 „	555·555555	45· „
VI.	879·873186	1·309278 „	666·666666	54· „
VII.	1026·518717	1·527491 „	777·777777	63· „
VIII.	1173·164248	1·745704 „	888·888888	72· „
IX.	1219·809779	1·963917 „	999·999999	81· „

	XI. BRITISH INDIA.[a]		XII. PERSIA.	
I.	106·918215	1·79576 pies.	41·429836	·48274 shahis.
II.	213·836430	3·59152 „	82·859672	·96548 „
III.	320·754645	5·38728 „	124·289509	1·44822 „
IV.	427·672860	7·18304 „	165·719345	1·93096 „
V.	534·591075	8·97880 „	207·149181	2·41370 „
VI.	641·509291	10·77456 „	248·579018	2·89644 „
VII.	748·427506	12·57032 „	290·008854	3·37918 „
VIII.	855·345721	14·36608 „	331·438690	3·86192 „
IX.	962·263936	16·16184 „	372·868526	4·34466 „

TABLE XIX.

Kilograms and tons of pure silver in the present and past 1,000,000 chief standard silver moneys of account on issue from the mints in 12 silver monetary systems.

1000 kilograms = ·98420591 ton avoirdupois.

	Kilograms.	Tons.
Shanghae tael	33462·54	32·934029
Trade dollar	25529·192	25·126080
Mexican dollar...	24440·918	24·054988
Japanese yen	24260·715	23·877534
Javanese rix dollar	23625·000	23·251864
Philippine dollar	23364·000	22·994986
Columbia United States sol	22500·000	22·144639
Bolivian boliviano	20250·000	19·930169
Russian rouble...	17996·093	17·711862
Siamese tical	14664·553	14·43242
Austrian florin	11111·111	10·935621
British Indian rupee	18691·821	10·422237
Persian kran	4142·984	4·039470

MULTIPLES OF THE THIRTEEN CONSTANTS TO BE USED AS DIVISORS OF THE PRICE OF GOLD IN THE THIRTEEN SILVER MONETARY SYSTEMS OF THE WORLD TO DETERMINE THE RATIO BETWEEN THE METALS.

	Shanghae tael.	Trade dollar.	Mexico peso.	Japan yen.
I.	1·1206023	40·826	40·914994	15·45709
II.	2·2412046	81·652	81·829988	30·91418
III.	3·3618069	122·478	122·744982	46·37127
IV.	4·4824092	163·304	163·659976	61·82836
V.	5·6030115	204·130	204·574970	77·28554
VI.	6·7236138	244·956	245·489964	92·74204
VII.	7·8442161	285·782	286·404958	108·19963
VIII.	8·9648184	326·608	327·319952	123·65672
IX.	10·0854207	367·434	368·234946	139·11381

	Java rixdollar.	Philippines dollar.	Columbia U.S. sol.	Bolivia bolivianos.
I.	42·328442	42·800906	44·444444	49·382716
II.	84·656884	85·601812	88·888888	98·765432
III.	126·985326	128·402718	133·333332	148·148148
IV.	169·313768	171·203624	177·777776	197·530864
V.	211·642210	214·004530	222·222220	246·913580
VI.	253·970652	256·805436	266·666664	296·296296
VII.	296·299094	299·606342	311·111108	345·679012
VIII.	338·627536	342·407248	355·555552	395·061728
IX.	380·955978	385·208154	399·999996	444·444444

	Russia kopeck.	Siam tical.	Austria-Hungary florin.	Brit. India rupee.
I.	23·704185	1·0428306	45·	1·090909
II.	47·408370	2·0856612	90·	2·181818
III.	71·112555	3·1284918	135·	3·272727
IV.	94·816740	4·1713224	180·	4·363636
V.	118·520925	5·2141530	225·	5·454545
VI.	142·225110	6·2569836	270·	6·545454
VII.	165·929295	7·2998142	315·	7 636363
VIII.	189·633480	8·3426448	360·	8·727272
IX.	213·337665	9·3854754	405·	9·818181

	Persia kran
I.	1·1111111
II.	2·2222222
III.	3·3333333
IV.	4·4444444
V.	5·5555555
VI.	6·6666666
VII.	7·7777777
VIII.	8·8888888
IX.	9·9999999

SECTION V.

I. 272 FIXED GOLD PARS OF EXCHANGE.

Being signs in each of the seventeen gold monetary systems, in the whole or decimal parts of each of the seventeen chief gold moneys of account at the mint issue weight in pure gold, for the mint issue of pure gold in each of the other sixteen chief gold moneys of account. Table XX.

II. MULTIPLES OF THE 272 FIXED GOLD PARS OF EXCHANGE. TABLE XXI.

III. 208 FIXED GOLD PARS OF EXCHANGE BETWEEN 17 GOLD AND 12 SILVER SYSTEMS AT THE RATIO OF 1 PART OF GOLD TO 1 PART OF SILVER.

Being signs in each of the seventeen gold monetary systems, in the whole or decimal parts of each of the seventeen chief gold moneys of account at the mint issue weight of pure gold, for the mint issue weight of pure silver in each of twelve chief silver moneys of account; at the ratio of 1 part of gold to 1 part of silver. Table XXII.

IV. MULTIPLES OF THE 208 FIXED GOLD PARS OF EXCHANGE BETWEEN 17 GOLD AND 12 SILVER SYSTEMS. TABLE XXIII.

V. 132 FIXED SILVER PARS OF EXCHANGE.

Being signs in each of the twelve silver monetary systems, in the whole or decimal parts of each of the twelve chief silver moneys of account at mint issue weight of pure silver, for the mint issue weight of pure silver in each of the other eleven chief silver moneys of account. Table XXIV.

VI. Multiples of 132 Fixed Silver Pars of Exchange. Table XXV.

VII. 208 Fixed Silver Pars of Exchange between 12 silver and 17 gold systems at the ratio of 1 part of silver to 1 part of gold.

Being signs in each of the twelve monetary systems, in the whole or decimal parts of each of the twelve chief silver moneys of account at the mint issue weight of pure silver, for the mint issue weight of pure gold in each of the seventeen chief gold moneys of account; at the ratio of 1 part of silver to 1 part of gold. Table XXVI.

VIII. Multiples of the 208 Fixed Silver Pars of Exchange between 12 silver and 17 gold systems. Table XXVII.

The author is indebted to Mr. F. West, Computist to the India Office, for the accuracy of Tables XX., XXII., XXIV., and XXVI.; also for equivalents of troy grains and decigrams in units of the different countries, as well as units of the different countries in troy and decigram weights, founded upon data supplied to him.

The greatest pains have been taken to secure accuracy in the presentation of the following 820 multiples. Should any error be discovered, a favour would be conferred upon the author by communicating the fact to him.

EXAMPLE OF THE USE OF THE MULTIPLES OF THE 272 FIXED GOLD PARS OF EXCHANGE. TABLE XXI.

Find the equivalent in British pounds to francs 7,895,786·49. Under British equivalents and French francs will be found :

Francs	7,000,000	=	£277,540·9
„	800,000	=	31,718·96
„	90,000	=	3,568·383
„	5,000	=	198·243
„	700	=	27·754
„	80	=	3·171
„	6	=	·237
„	·4	=	·015
„	·09	=	·003
			£313,057·666

Check this by weight. Multiply the francs by the mint issue weight of gold in the franc, and divide by the mint issue weight of gold in the pound. The sum is :—

$$\frac{7{,}895{,}786{\cdot}49 \times 2{\cdot}903226}{73{\cdot}223817} = £313{,}057{\cdot}32 : \text{Ans.}$$

The addition of the multiples exceeds the other working by 1 per million.

Since all the currencies in use in the world are based upon weights of metal presented in these eight Tables, the metal pars must be obtained, and the percentage deviation resulting from inconvertible paper or a fictitious value conferred upon a weight of metal must be applied to arrive at the equivalents of the day between the seven descriptions of current intermediaries.

TABLE XXI.

Multiples of the Monetary signs for the mint issue weight of pure gold in each of 17 chief gold moneys of account, for the mint issue weight of pure gold in 16 other chief gold moneys of account.

No. 1. Egyptian Equivalents to

	British £.	Turkish £.	Portuguese milreis.	Uruguayan peso.
1.	·9845219	·8893669	·2185826	·2092301
2.	1·9690438	1·7787338	·4371652	·4184602
3.	2·9535657	2·6681007	·6557478	·6276903
4.	3·9380876	3·5574676	·8743304	·8369204
5.	4·9226095	4·4468345	1·0929130	1·0461505
6.	5·9071314	5·3362014	1·3114956	1·2553806
7.	6·8916533	6·2255683	1·5300782	1·4646107
8.	7·8761752	7·1149352	1·7486608	1·6738408
9.	8·8606971	8·0043021	1·9672434	1·8830709

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	·2023033	·1951748	·1104913	·1040834
2.	·4046066	·3903496	·2209826	·2081668
3.	·6069099	·5855244	·3314739	·3122502
4.	·8092132	·7806992	·4419652	·4163336
5.	1·0115165	·9758740	·5524565	·5204170
6.	1·2138198	1·1710488	·6629478	·6245004
7.	1·4161231	1·3662236	·7734391	·7285838
8.	1·6184264	1·5613984	·8839304	·8326672
9.	1·8207297	1·7565732	·9944217	·9367506

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·1008403	·0813176	·0738391	·0656348
2.	·2016806	·1626352	·1476782	·1312696
3.	·3025209	·2439528	·2215173	·1969044
4.	·4033612	·3252704	·2953564	·2625392
5.	·5042015	·4065880	·3691955	·3281740
6.	·6050418	·4879056	·4430346	·3938088
7.	·7058821	·5692232	·5168737	·4594436
8.	·8067224	·6505408	·5907128	·5250784
9.	·9075627	·7318584	·6645519	·5907132

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·0542152	·0481912	·0409920	·0390350
2.	·1084304	·0963824	·0819840	·0780700
3.	·1626456	·1445736	·1229760	·1171050
4.	·2168608	·1927648	·1639680	·1561400
5.	·2710760	·2409560	·2049600	·1951750
6.	·3252912	·2891472	·2459520	·2342100
7.	·3795064	·3373384	·2869440	·2732450
8.	·4337216	·3855296	·3279360	·3122800
9.	·4879368	·4337208	·3689280	·3513150

NO. 2. BRITISH EQUIVALENTS TO

	Egyptian £.	Turkish £.	Portuguese milreis.	Uruguayan peso.
1.	·1015721	·9033491	·2220191	·2125195
2.	2031442	18066982	4440382	·4250390
3.	3047163	27100473	6660573	·6375585
4.	4062884	36133964	8880764	·8500780
5.	5078605	45167455	11100955	1·0625975
6.	6094326	54200946	13321146	1·2751170
7.	7110047	63234437	15541337	1·4876365
8.	8125768	72267928	17761528	1·7001560
9.	9141489	81301419	19981719	1·9126755

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	·2054838	·1982433	·1122284	·1057198
2.	·4109676	·3964866	·2244568	·2114396
3.	·6164514	·5947299	·3366852	·3171594
4.	·8219352	·7929732	·4489136	·4228792
5.	1·0274190	·9912165	·5611420	·5285990
6.	1·2329028	1·1894598	·6733704	·6343188
7.	1·4383866	1·3877031	·7855988	·7400386
8.	1·6438704	1·5859464	·8978272	·8457584
9.	1·8493542	1·7841897	1·0100556	·9514782

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·1024257	·0825961	·0749999	·0666667
2.	·2048514	·1651922	·1499998	·1333334
3.	·3072771	·2477883	·2249997	·2000001
4.	·4097028	·3303844	·2999996	·2666668
5.	·5121285	·4129805	·3749995	·3333335
6.	·6145542	·4955766	·4499994	·4000002
7.	·7169799	·5781727	·5249993	·4666669
8.	·8194056	·6607688	·5999992	·5333336
9.	·9218313	·7433649	·6749991	·6000003

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·0550676	·0489489	·0416365	·0396487
2.	·1101352	·0978978	·0832730	·0792974
3.	·1652028	·1468467	·1249095	·1189461
4.	·2202704	·1957956	·1665460	·1585948
5.	·2753380	·2447445	·2081825	·1982435
6.	·3304056	·2936934	·2498190	·2378922
7.	·3854732	·3426423	·2914555	·2775409
8.	·4405408	·3915912	·3330920	·3171896
9.	·4956084	·4405401	·3747285	·3568383

NO. 3. TURKISH EQUIVALENTS TO

	Egyptian £.	British £.	Portuguese milreis.	Uruguayan peso.
1.	1·124395	1·106992	·2457733	·2352574
2.	2·248790	2·213984	·4915466	·4705148
3.	3·373185	3·320976	·7373199	·7057722
4.	4·497580	4·427968	·9830932	·9410296
5.	5·621975	5·534960	1·2288665	1·1762870
6.	6·746370	6·641952	1·4746398	1·4115444
7.	7·870765	7·748944	1·7204131	1·6468018
8.	8·995160	8·855936	1·9661864	1·8820592
9.	10·119555	9·962928	2·2119597	2·1173166

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	·2274689	·2194537	·1242359	·1170309
2.	·4549378	·4389074	·2484718	·2340618
3.	·6824067	·6583611	·3727077	·3510927
4.	·9098756	·8778148	·4969436	·4681236
5.	1·1373445	1·0972685	·6211795	·5851545
6.	1·3648134	1·3167222	·7454154	·7021854
7.	1·5922823	1·5361759	·8696513	·8192163
8.	1·8197512	1·7556296	·9938872	·9362472
9.	2·0472201	1·9750833	1·1181231	1·0532781

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·1133844	·0914332	·0830243	·0737995
2.	·2267688	·1828664	·1660486	·1475990
3.	·3401532	·2742996	·2490729	·2213985
4.	·4535376	·3657328	·3320972	·2951980
5.	·5669220	·4571660	·4151215	·3689975
6.	·6803064	·5485992	·4981458	·4427970
7.	·7936908	·6400324	·5811701	·5165965
8.	·9070752	·7314656	·6641944	·5903960
9.	1·0204596	·8228988	·7472187	·6641955

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·0609594	·0541860	·0460912	·0438907
2.	·1219188	·1083720	·0921824	·0877814
3.	·1828782	·1625580	·1382736	·1316721
4.	·2438376	·2167440	·1843648	·1755628
5.	·3047970	·2709300	·2304560	·2194535
6.	·3657564	·3251160	·2765472	·2633442
7.	·4267158	·3793020	·3226384	·3072349
8.	·4876752	·4334880	·3687296	·3511256
9.	·5486346	·4876740	·4148208	·3950163

No. 4. PORTUGUESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Uruguayan peso.
1.	4·574929	4·504118	4·068791	·9572129
2.	9·149858	9·008236	8·137582	1·9144258
3.	13·724787	13·512354	12·206373	2·8716387
4.	18·299716	18·016472	16·275164	3·8288516
5.	22·874645	22·520590	20·343955	4·7860645
6.	27·449574	27·024708	24·412746	5·7432774
7.	32·024503	31·528826	28·481537	6·7004903
8.	36·599432	36·032944	32·550328	7·6577032
9.	41·174361	40·537062	36·619119	8·6149161

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	·9255233	·8929110	·5054899	·4761744
2.	1·8510466	1·7858220	1·0109798	·9523488
3.	2·7765699	2·6787330	1·5164697	1·4285232
4.	3·7020932	3·5716440	2·0219596	1·9046976
5.	4·6276165	4·4645550	2·5274495	2·3808720
6.	5·5531398	5·3574660	3·0329394	2·8570464
7.	6·4786631	6·2503770	3·5384293	3·3332208
8.	7·4041864	7·1432880	4·0439192	3·8093952
9.	8·3297097	8·0361990	4·5494091	4·2855696

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·4613374	·3720225	·3378086	·3002745
2.	·9226748	·7440450	·6756172	·6005490
3.	1·3840122	1·1160675	1·0134258	·9008235
4.	1·8453496	1·4880900	1·3512344	1·2010980
5.	2·3066870	1·8601125	1·6890430	1·5013725
6.	2·7680244	2·2321350	2·0268516	1·8016470
7.	3·2293618	2·6041575	2·3646602	2·1019215
8.	3·6906992	2·9761800	2·7024688	2·4021960
9.	4·1520366	3·3482025	3·0402774	2·7024705

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·2480308	·2204715	·1875355	·1785822
2.	·4960616	·4409430	·3750710	·3571644
3.	·7440924	·6614145	·5626065	·5357466
4.	·9921232	·8818860	·7501420	·7143288
5.	1·2401540	1·1023575	·9376775	·8929110
6.	1·4881848	1·3228290	1·1252130	1·0714932
7.	1·7362156	1·5433005	1·3127485	1·2500754
8.	1·9842464	1·7637720	1·5002840	1·4286576
9.	2·1322772	1·9842435	1·6878195	1·6072398

NO. 5. URUGUAYAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	4·779427	4·705450	4·250664	1·044700
2.	9·558854	9·410900	8·501328	2·089400
3.	14·338281	14·116350	12·751992	3·134100
4.	19·117708	18·821800	17·002656	4·178800
5.	23·897135	23·527250	21·253320	5·223500
6.	28·676562	28·232700	25·503984	6·268200
7.	33·455989	32·938150	29·754648	7·312900
8.	38·235416	37·643600	34·005312	8·357600
9.	43·014843	42·349050	38·255976	9·402300

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	0·9668939	·9328239	·5280851	·4974592
2.	1·9337878	1·8656478	1·0561702	·9949184
3.	2·9006817	2·7984717	1·5842553	1·4923776
4.	3·8675756	3·7312956	2·1123404	1·9898368
5.	4·8344695	4·6641195	2·6404255	2·4872960
6.	5·8013634	5·5969434	3·1685106	2·9847552
7.	6·7682573	6·5297673	3·6965957	3·4822144
8.	7·7351512	7·4625912	4·2246808	3·9796736
9.	8·7020451	8·3954151	4·7527659	4·4771328

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·4819590	·3886517	·3529085	·3136967
2.	·9639180	·7773034	·7058170	·6273934
3.	1·4458770	1·1659551	1·0587255	·9410901
4.	1·9278360	1·5546068	1·4116340	1·2547868
5.	2·4097950	1·9432585	1·7645425	1·5684835
6.	2·8917540	2·3319102	2·1174510	1·8821802
7.	3·3737130	2·7205619	2·4703595	2·1958769
8.	3·8556720	3·1092136	2·8232680	2·5095736
9.	4·3376310	3·4978653	3·1761765	2·8232703

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·2591177	·2303265	·1959183	·1865648
2.	·5182354	·4606530	·3918366	·3731296
3.	·7773531	·6909795	·5877549	·5596944
4.	1·0364708	·9213060	·7836732	·7462592
5.	1·2955885	1·1516325	·9795915	·9328240
6.	1·5547062	1·3819590	1·1755098	1·1193888
7.	1·8138239	1·6122855	1·3714281	1·3059536
8.	2·0729416	1·8426120	1·5673464	1·5925184
9.	2·3320593	2·0729385	1·7632647	1·6790832

NO. 6. UNITED STATES, N.A., EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	4·943073	4·866563	4·396206	1·080470
2.	9·886146	9·733126	8·792412	2·160940
3.	14·829219	14·599689	13·188618	3·241410
4.	19·772292	19·466252	17·584824	4·321880
5.	24·715365	24·332815	21·981030	5·402350
6.	29·658438	29·199378	26·377236	6·482820
7.	34·601511	34·065941	30·773442	7·563290
8.	39·544584	38·932504	35·169648	8·643760
9.	44·487657	43·799067	39·565854	9·724230

	Uruguayan peso.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	1·034240	·9647634	·5461666	·5144920
2.	2·068480	1·9295268	1·0923332	1·0289840
3.	3·102720	2·8942902	1·6384998	1·5434760
4.	4·136960	3·8590536	2·1846664	2·0579680
5.	5·171200	4·8238170	2·7308330	2·5724600
6.	6·205440	5·7885804	3·2769996	3·0869520
7.	7·239680	6·7533438	3·8231662	3·6014440
8.	8·273920	7·7181072	4·3693328	4·1159360
9.	9·308160	8·6828706	4·9154994	4·6304280

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·4984611	·4019590	·3649920	·3244376
2.	·9969222	·8039180	·7299840	·6488752
3.	1·4953833	1·2058770	1·0949760	·9733128
4.	1·9938444	1·6078360	1·4599680	1·2977504
5.	2·4923055	2·0097950	1·8249600	1·5221880
6.	2·9907666	2·4117540	2·1899520	1·9466256
7.	3·4892277	2·8137130	2·5549440	2·2710632
8.	3·9876888	3·2156720	2·9199360	2·5955008
9.	4·4861499	3·6176310	3·2849280	2·9199384

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·2679898	·2382128	·2026265	·1929527
2.	·5359796	·4764256	·4052530	·3859054
3.	·8039694	·7146384	·6078795	·5788581
4.	1·0719592	·9528512	·8105060	·7718108
5.	1·3399490	1·1910640	1·0131325	·9647635
6.	1·6079388	1·4292768	1·2157590	1·1577162
7.	1·8759286	1·6674896	1·4183855	1·3506689
8.	2·1439184	1·9057024	1·6210120	1·5436216
9.	2·4119082	2·1439152	1·8236385	1·7365743

NO. 7. ARGENTINE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese in lreis.
1.	5·123611	5·044307	4·556770	1·119932
2	10·247222	10·088614	9·113540	2·239864
3.	15·370833	15·132921	13·670310	3·359796
4	20·494444	20·177228	18·227080	4·479728
5.	25·618055	25·221535	22·783850	5·599660
6.	30·741666	30·265842	27·340620	6·719592
7.	35·865277	35·310149	31·897390	7·839524
8.	40·988888	40·354456	36·454160	8·959456
9.	46·102499	45·398763	41·010930	10·079388

	Uruguayan peso.	U.S.A. dollar.	Brazilian milreis.	Russian rouble.
1.	1·072014	1·036524	·5661145	·5332831
2.	2·144028	2·073048	1·1322290	1·0665662
3.	3·216042	3·109572	1·6983435	1·5998493
4.	4·288056	4·146096	2·2644580	2·1331324
5.	5·360070	5·182620	2·8305725	2·6664155
6.	6·432084	6·219144	3·3966870	3·1996986
7.	7·504098	7·255668	3·9628015	3·7329817
8.	8·576112	8·292192	4·5289160	4·2662648
9.	9·648126	9·328716	5·0950305	4·7995479

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·5166667	·4166400	·3783228	·3362872
2.	1·0333334	·8332800	·7566456	·6725744
3.	1·5500001	1·2499200	1·1349684	1·0088616
4.	2·0666668	1·6665600	1·5132912	1·3451488
5.	2·5833335	2·0832000	1·8916140	1·6814360
6.	3·1000002	2·4998400	2·2699368	2·0177232
7.	3·6166669	2·9164800	2·6482596	2·3540104
8.	4·1333336	3·3331200	3·0265824	2·6902976
9.	4·6500003	3·7497600	3·4049052	3·0265848

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·2777778	·2469132	·2100271	·2000000
2.	·5555556	·4938264	·4200542	·4000000
3.	·8333334	·7407396	·6300813	·6000000
4.	1·1111112	·9876528	·8401084	·8000000
5.	1·3888890	1·2345660	1·0501355	1·0000000
6.	1·6666668	1·4814792	1·2601626	1·2000000
7.	1·9444446	1·7283924	1·4701897	1·4000000
8.	2·2222224	1·9753056	1·6802168	1·6000000
9.	2·5000002	2·2222188	1·8902439	1·8000000

No. 8. BRAZILIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9·050485	8·910401	8·049202	1·978279
2.	18·100970	17·820802	16·098404	3·956558
3.	27·151455	26·731203	24·147606	5·934837
4.	36·201940	35·641604	32·196808	7·913116
5.	45·252425	44·552005	40·246010	9·891395
6.	54·302910	53·462406	48·295212	11·869674
7.	63·353395	62·372807	56·344414	13·847953
8.	72·403880	71·283208	64·393616	15·826232
9.	81·454365	80·193609	72·442818	17·804511

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Russian rouble.
1.	1·893634	1·830943	1·766427	·9420056
2.	3·787268	3·661886	3·532854	1·8840112
3.	5·680902	5·492829	5·299281	2·8260168
4.	7·574536	7·323772	7·065708	3·7680224
5.	9·468170	9·154715	8·832135	4·7100280
6.	11·361804	10·985658	10·598562	5·6520336
7.	13·255438	12·816601	12·364989	6·5940392
8.	15·149072	14·647544	14·131416	7·5360448
9	17·042706	16·478487	15·897843	8·4780504

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	·9126539	·7359641	·6682795	·5940267
2.	1·8253078	1·4719282	1·3365590	1·1880534
3.	2·7379617	2·2078923	2·0048385	1·7820801
4.	3·6506156	2·9438564	2·6731180	2·3761068
5.	4·5632695	3·6798205	3·3413975	2·9701335
6.	5·4759234	4·4157846	4·0096770	3·5641602
7.	6·3885773	5·1517487	4·6779565	4·1581869
8.	7·3012312	5·8877128	5·3462360	4·7522136
9.	8·2138851	6·6236769	6·0145155	5·3462403

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·4906742	·4361541	·3709975	·3532854
2.	·9813484	·8723082	·7419950	·7065708
3.	1·4720226	1·3084623	1·1129925	1·0598562
4.	1·9626968	1·7446164	1·4839900	1·4131416
5.	2·4533710	2·1807705	1·8549875	1·7664270
6.	2·9440452	2·6169246	2·2259850	2·1197124
7.	3·4347194	3·0530787	2·5969825	2·4729978
8.	3·9253936	3·4892328	2·9679800	2·8262832
9.	4·4160678	3·9253869	3·3389775	3·1795686

NO. 9. RUSSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9·607676	9·458968	8·544750	2·100071
2.	19·215352	18·917936	17·089500	4·200142
3.	28·823028	28·376904	25·634250	6·300213
4.	38·430704	37·835872	34·179000	8·400284
5.	48·038380	47·294840	42·723750	10·500355
6.	57·646056	56·753808	51·268500	12·600426
7.	67·253732	66·212776	59·813250	14·700497
8.	76·861408	75·671744	68·358000	16·800568
9.	86·469084	85·130712	76·902750	18·900639

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2·010215	1·943665	1·875177	1·061565
2.	4·020430	3·887330	3·750354	2·123130
3.	6·030645	5·830995	5·625531	3·184695
4.	8·040860	7·774660	7·500708	4·246260
5.	10·051075	9·718325	9·375885	5·307825
6.	12·061290	11·661990	11·251062	6·369390
7.	14·071505	13·605655	13·126239	7·430955
8.	16·081720	15·549320	15·001416	8·492520
9.	18·091935	17·492985	16·876593	9·554085

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	0·9688413	·7812736	·7094220	·6305978
2.	1·9376826	1·5625472	1·4188440	1·2611956
3.	2·9065239	2·3438208	2·1282660	1·8917934
4.	3·8753652	3·1250944	2·8376880	2·5223912
5.	4·8442065	3·9063680	3·5471100	3·1529890
6.	5·8130478	4·6876416	4·2565320	3·7835868
7.	6·7818891	5·4689152	4·9659540	4·4141846
8.	7·7507304	6·2501888	5·6753760	5·0447824
9.	8·7195717	7·0314624	6·3847980	5·6753802

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·5208824	·4630059	·3938379	·3750353
2.	1·0417648	·9260118	·7876758	·7500706
3.	1·5626472	1·3890177	1·1815137	1·1251059
4.	2·0835296	1·8520236	1·5753516	1·5001412
5.	2·6044120	2·3150295	1·9691895	1·8751765
6.	3·1252944	2·7780354	2·3630274	2·2502118
7.	3·6461768	3·2410413	2·7568653	2·6252471
8.	4·1670592	3·7040472	3·1507032	3·0002824
9.	4·6879416	4·1670531	3·5445411	3·3753177

NO. 10. JAPANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9·916666	9·763175	8·819555	2·167611
2.	19·833332	19·526350	17·639110	4·335222
3.	29·749998	29·289525	26·458665	6·502833
4	39·666664	39·052700	35·278220	8·670444
5.	49·583330	48·815875	44·097775	10·838055
6.	59·499996	58·579050	52·917330	13·005666
7.	69·416662	68·342225	61·736885	15·173277
8.	79·333328	78·105400	70·556440	17·340888
9.	89·249994	87·868575	79·375995	19·508499

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2·074865	2·006174	1·935484	1·095706
2.	4·149730	4·012348	3·870968	2·191412
3.	6·224595	6·018522	5·806452	3·287118
4.	8·299460	8·024696	7·741936	4·382824
5.	10·374325	10·030870	9·677420	5·478530
6.	12·449190	12·037044	11·612904	6·574236
7.	14·524055	14·043218	13·548388	7·669942
8.	16·598920	16·049392	15·483872	8·765648
9.	18·673785	18·055566	17·419356	9·861354

	Russian rouble.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	1·032161	·8064000	·7322376	·6508784
2.	2·064322	1·6128000	1·4644752	1·3017568
3.	3·096483	2·4192000	2·1967128	1·9526352
4.	4·128644	3·2256000	2·9289504	2·6035136
5.	5·160805	4·0320000	3·6611880	3·2543920
6.	6·192966	4·8384000	4·3934256	3·9052704
7.	7·225127	5·6448000	5·1256632	4·5561488
8.	8·257288	6·4512000	5·8579008	5·2070272
9.	9·289449	7·2576000	6·5901384	5·8579056

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·5376344	·4778965	·4065041	·3870968
2.	1·0752688	·9557930	·8130082	·7741936
3.	1·6129032	1·4336895	1·2195123	1·1612904
4.	2·1505376	1·9115860	1·6260164	1·5483872
5.	2·6881720	2·3894825	2·0325205	1·9354840
6.	3·2258064	2·8673790	2·4390246	2·3225808
7.	3·7634408	3·3452755	2·8455287	2·7096776
8.	4·3010752	3·8231720	3·2520328	3·0967744
9.	4·8387096	4·3010685	3·6585369	3·4838712

NO. 11. DUTCH EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	12·29745	12·10711	10·93695	2·688010
2.	24·59490	24·21422	21·87390	5·376020
3.	36·89235	36·32133	32·81085	8·064030
4.	49·18980	48·42844	43·74780	10·752040
5.	61·48725	60·53555	54·68475	13·440050
6.	73·78470	72·64266	65·62170	16·128060
7.	86·08215	84·74977	76·55865	18·816070
8.	98·37960	96·85688	87·49560	21·504080
9.	110·67705	108·96399	98·43255	24·192090

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2·572998	2·487816	2·400154	1·358762
2.	5·145996	4·975632	4·800308	2·717524
3.	7·718994	7·463448	7·200462	4·076286
4.	10·291992	9·951264	9·600616	5·435048
5.	12·864990	12·439080	12·000770	6·793810
6.	15·437988	14·926896	14·400924	8·152572
7.	18·010986	17·414712	16·801078	9·511334
8.	20·583984	19·902528	19·201232	10·870096
9.	23·156982	22·390344	21·601386	12·228858

	Russian rouble.	Japanese yen.	Chilian condor.	British Indian rupee.
1.	1·279961	1·240079	·9080328	·8071409
2.	2·559922	2·480158	1·8160656	1·6142818
3.	3·839883	3·720237	2·7240984	2·4214227
4.	5·119844	4·960316	3·6321312	3·2285636
5.	6·399805	6·200395	4·540164c	4·0357045
6.	7·679766	7·440474	5·4481968	4·8428454
7.	8·959727	8·680553	6·3562296	5·6499863
8.	10·239688	9·920632	7·2642624	6·4571272
9.	11·519649	11·160711	8·1722952	7·2642681

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·5667094	·5926296	·5040973	·4800307
2.	1·3334188	1·1852592	1·0081946	·9600614
3.	2·0001282	1·7778888	1·5122919	1·4400921
4.	2·6663376	2·3705184	2·0163892	1·9201228
5.	3·3335470	2·9631480	2·5204865	2·4001535
6.	4·0002564	3·5557776	3·0245838	2·8801842
7.	4·6669658	4·1484072	3·5286811	3·3602149
8.	5·3336752	4·7410368	4·0327784	3·8402456
9.	6·0003846	5·3336664	4·5368757	4·3202763

NO. 12. CHILIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	13·54296	13·33334	12·04466	2·960256
2.	27·08592	26·66668	24·08932	5·920512
3.	40·62888	40·00002	36·13398	8·880768
4.	54·17184	53·33336	48·17864	11·841024
5.	67·71480	66·66670	60·22330	14·801280
6.	81·25776	80·00004	72·26796	17·761536
7.	94·80072	93·33338	84·31262	20·721792
8.	108·34368	106·66672	96·35728	23·682048
9.	121·88664	120·00006	108·40194	26·642304

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2·833596	2·739786	2·643246	1·496380
2.	5·667192	5·479572	5·286492	2·992760
3.	8·500788	8·219358	7·929738	4·489140
4.	11·334384	10·959144	10·572984	5·985520
5.	14·167980	13·698930	13·216230	7·481900
6.	17·001576	16·438716	15·859476	8·978280
7.	19·835172	19·178502	18·502722	10·474660
8.	22·668768	21·918288	21·145968	11·971040
9.	25·502364	24·658074	23·789214	13·467420

	Russian rouble.	Japanese yen.	Netherlands guilder.	British Indian rupee.
1.	1·409598	1·3656769	1·101282	·8888895
2.	2·819196	2·7313538	2·202564	1·7777790
3.	4·228794	4·0970307	3·303846	2·6666685
4.	5·638392	5·4627076	4·405128	3·5555580
5.	7·047990	6·8283845	5·506410	4·4444475
6.	8·457588	8·1940614	6·607692	5·3333370
7.	9·867186	9·5597383	7·708974	6·2222265
8.	11·276784	10·9254152	8·810256	7·1111160
9.	12·686382	12·2910921	9·911538	8·0000055

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·7342349	·6526522	·5551532	·5286491
2.	1·4684698	1·3053044	1·1103064	1·0572982
3.	2·2027047	1·9579566	1·6654596	1·5859473
4.	2·9369396	2·6106088	2·2206128	2·1145964
5.	3·6711745	3·2632610	2·7757660	2·6432455
6.	4·4054094	3·9159132	3·3309192	3·1718946
7.	5·1396443	4·5685654	3·8860724	3·7005437
8.	5·8738792	5·2212176	4·4412256	4·2291928
9.	6·6081141	5·8738698	4·9963788	4·7578419

NO. 13. BRITISH INDIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	15·23582	15·	13·55024	3·330286
2.	30·47164	30·	27·10048	6·660572
3.	45·70746	45·	40·65072	9·990858
4.	60·94328	60·	54·20096	13·321144
5.	76·17910	75·	67·75120	16·651430
6.	91·41492	90·	81·30144	19·981716
7.	106·65074	105·	94·85168	23·312002
8.	121·88656	120·	108·40192	26·642288
9.	137·12238	135·	121·95261	29·972574

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	3·187793	3·082257	2·973649	1·683426
2.	6·375586	6·164514	5·947298	3·366852
3.	9·563379	9·246771	8·920947	5·050278
4.	12·751172	12·329028	11·894596	6·733704
5.	15·938965	15·411285	14·868245	8·417130
6.	19·126758	18·493542	17·841894	10·100556
7.	22·314551	21·575799	20·815543	11·783982
8.	25·502344	24·658056	23·789192	13·467408
9.	28·690137	27·740313	26·762841	15·150834

	Russian rouble.	Japanese yen.	Netherland guilder.	Chilian condor.
1.	1·385797	1·536385	1·238941	1·124999
2.	3·171594	3·072770	2·477882	2·249998
3.	4·757391	4·609155	3·716823	3·374997
4.	6·343188	6·145540	4·955764	4·499996
5.	7·928985	7·681925	6·194705	5·624995
6.	9·514782	9·218310	7·433646	6·749994
7.	11·100579	10·754695	8·672587	7·874993
8.	12·686376	12·291080	9·911528	8·999992
9.	14·272173	13·827465	11·150469	10·124991

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	·8260136	·7342332	·6245469	·5947298
2.	1·6520272	1·4684664	1·2490938	1·1894596
3.	2·4780408	2·2026996	1·8736407	1·7841894
4.	3·3040544	2·9369328	2·4981876	2·3789192
5.	4·1300680	3·6711660	3·1227345	2·9736490
6.	4·9560816	4·4053992	3·7472814	3·5683788
7.	5·7820952	5·1396324	4·3718283	4·1631086
8.	6·6081088	5·8738656	4·9963752	4·7578384
9.	7·4341224	6·6080988	5·6209221	5·2525682

NO. 14. SCANDINAVIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	18·445	18·15951	16·40437	4·031757
2.	36·890	36·31902	32·80874	8·063514
3.	55·335	54·47853	49·21311	12·095271
4.	73·780	72·63804	65·61748	16·127028
5.	92·225	90·79755	82·02185	20·158785
6.	110·670	108·95706	98·42622	24·190542
7.	129·115	127·11657	114·83059	28·222299
8.	147·560	145·27608	131·23496	32·254056
9.	166·005	163·43559	147·63933	36·285813

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis
1.	3·85925	3·731485	36·	2·038012
2.	7·71850	7·462970	72·	4·076024
3.	11·57775	11·194455	108·	6·114036
4.	15·43700	14·925940	144·	8·152048
5.	19·29625	18·657425	180·	10·190060
6.	23·15550	22·388910	216·	12·228072
7.	27·01475	26·120395	252·	14·266084
8.	30·87400	29·851880	288·	16·304096
9.	34·73325	33·583365	324·	18·342108

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	1·919819	1·86	1·499904	1·361962
2.	3·839638	3·72	2·999808	2·723924
3.	5·759457	5·58	4·499712	4·085886
4.	7·679276	7·44	5·999616	5·447848
5.	9·599095	9·30	7·499520	6·809810
6.	11·518914	11·16	8·999424	8·171772
7.	13·438733	13·02	10·499328	9·533734
8.	15·358552	14·88	11·999232	10·895696
9.	17·278371	16·74	13·499136	12·257658

	British Indian rupee.	German mark.	Aus.-Hungarian crown.	French franc.
1.	1·210634	·8888875	·7560976	72·
2.	2·421268	1·7777750	1·5121952	144·
3.	3·631902	2·6666625	2·2682928	216·
4.	4·842536	3·5555500	3·0243904	288·
5.	6·053170	4·4444375	3·7804880	360·
6.	7·263804	5·3333250	4·5365856	432·
7.	8·474438	6·2222125	5·2926832	504·
8.	9·685072	7·1111000	6·0487808	576·
9.	10·895706	7·9999875	6·8048784	648·

NO. 15. GERMAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	20·75066	20·42948	18·45495	4·535733
2.	41·50132	40·85896	36·90990	9·071466
3.	62·25198	61·28844	55·36485	13·607199
4.	83·00264	81·71792	73·81980	18·142932
5.	103·75330	102·14740	92·27475	22·678665
6.	124·50396	122·57688	110·72970	27·214398
7.	145·25462	143·00636	129·18465	31·750131
8.	166·00528	163·43584	147·63960	36·285864
9.	186·75614	183·86532	166·09455	40·821597

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	4·341662	4·197927	4·050006	2·292767
2.	8·683324	8·395854	8·100012	4·585534
3.	13·024986	12·593781	12·150018	6·878301
4.	17·366648	16·791708	16·200024	9·171068
5.	21·708310	20·989635	20·250030	11·463835
6.	26·049972	25·187562	24·300036	13·756602
7.	30·391634	29·385489	28·350042	16·049369
8.	34·733296	33·583416	32·400048	18·342136
9.	39·074958	37·781343	36·450054	20·634903

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2·159800	2·092503	1·687395	1·532210
2	4·319600	4·185006	3·374790	3·064420
3.	6·479400	6·277509	5·062185	4·596630
4.	8·639200	8·370012	6·749580	6·128840
5.	10·799000	10·462515	8·436975	7·661050
6.	12·958800	12·555018	10·124370	9·193260
7.	15·118600	14·647521	11·811765	10·725470
8.	17·278400	16·740024	13·499160	12·257680
9.	19·438200	18·832527	15·186555	13·789890

	British Indian rupee.	Scandinavian crown.	Aus.-Hungarian crown.	French franc.
1.	1·361965	1·125002	·8506111	·8100012
2.	2·723930	2·250004	1·7012222	1·6200024
3.	4·085895	3·375006	2·5518333	2·4300036
4.	5·447860	4·500008	3·4024444	3·2400048
5.	6·809825	5·625010	4·2530555	4·0500060
6.	8·171790	6·750012	5·1036666	4·8600072
7.	9·533755	7·875014	5·9542777	5·6700084
8.	10·895720	9·000016	6·8048888	6·4800096
9.	12·257685	10·125018	7·6554999	7·2900108

No. 16. AUSTRIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	24·395	24·01741	21·69611	5·332323
2.	48·790	48·03482	43·39222	10·664646
3.	73·185	72·05223	65·08833	15·996969
4.	97·580	96·06964	86·78444	21·329292
5.	121·975	120·08705	108·48055	26·661615
6.	146·370	144·10446	130·17666	31·993938
7.	170·765	168·12187	151·87277	37·326261
8.	195·160	192·13928	173·56888	42·658584
9.	219·555	216·15669	195·26499	47·990907

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	5·104169	4·935189	4·761290	2·695436
2.	10·208338	9·870378	9·522580	5·390872
3.	15·312507	14·805567	14·283870	8·086308
4.	20·416676	19·740756	19·045160	10·781744
5.	25·520845	24·675945	23·806450	13·477180
6.	30·625014	29·611134	28·567740	16·172616
7.	35·729183	34·546323	33·329030	18·868052
8.	40·833352	39·481512	38·090320	21·563488
9.	45·937521	44·416701	42·851610	24·258924

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2·539116	2·46	1·983744	1·801305
2.	5·078232	4·92	3·967488	3·602610
3.	7·617348	7·38	5·951232	5·403915
4.	10·156464	9·84	7·934976	7·205220
5.	12·695580	12·30	9·918720	9·006525
6.	15·234696	14·76	11·902464	10·807830
7.	17·773812	17·22	13·886208	12·609135
8.	20·312928	19·68	15·869952	14·410440
9.	22·852044	22·14	17·853696	16·211745

	British Indian rupee.	Scandinavian crown.	German mark.	French franc.
1.	1·601161	1·322581	1·175625	·9522581
2.	3·202322	2·645162	2·351250	1·9045162
3.	4·803483	3·967743	3·526875	2·8567743
4.	6·404644	5·290324	4·702500	3·8090324
5.	8·005805	6·612905	5·878125	4·7612905
6.	9·606966	7·935486	7·053750	5·7135486
7.	11·208127	9·258067	8·229375	6·6658067
8.	12·809288	10·580648	9·405000	7·6180648
9.	14·410449	11·903229	10·580625	8·5703229

No. 17. FRENCH EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	25·61806	25·22154	22·78385	5·599662
2.	51·23612	50·44308	45·56770	11·199324
3.	76·85418	75·66462	68·35155	16·798986
4.	102·47224	100·88616	91·13540	22·398648
5.	128·09030	126·10770	113·91925	27·998310
6.	153·70836	151·32924	136·70310	33·597972
7.	179·32642	176·55078	159·48695	39·197634
8.	204·94448	201·77232	182·27080	44·797296
9.	230·56254	226·99386	205·05465	50·396958

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	5·360069	5·182618	5·	2·830573
2.	10·720138	10·365236	10·	5·661146
3.	16·080207	15·547854	15·	8·491719
4.	21·440276	20·730472	20·	11·322292
5.	26·800345	25·913090	25·	14·152865
6.	32·160414	31·095708	30·	16·983438
7.	37·520483	36·278326	35·	19·814011
8.	42·880552	41·460944	40·	22·644584
9.	48·240621	46·643562	45·	25·475157

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2·666415	2·583333	2·0832	1·891614
2.	5·332830	5·166666	4·1664	3·783228
3.	7·999245	7·749999	6·2496	5·674842
4.	10·665660	10·333332	8·3328	7·566456
5.	13·332075	12·916665	10·4160	9·458070
6.	15·998490	15·499998	12·4992	11·349684
7.	18·664905	18·083331	14·5824	13·241298
8.	21·331320	20·666664	16·6656	15·132912
9.	23·997735	23·249997	18·7488	17·024526

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	1·684136	1·388889	1·234566	1·050136
2.	3·362872	2·777778	2·469132	2·100272
3.	5·044308	4·166667	3·703698	3·150408
4.	6·725744	5·555556	4·938264	4·200544
5.	8·407180	6·944445	6·172830	5·250680
6.	10·088616	8·333334	7·407396	6·300816
7.	11·770052	9·722223	8·641962	7·350952
8.	13·451488	11·111112	9·876528	8·401088
9.	15·132924	12·500001	11·111094	9·451224

EXAMPLE OF USE OF TABLE XXIII.

It is desired to know the equivalent in German marks for 856,748·67 pesos at 37·726 ratio.

Under German and against Mexico will be found the following figures :—

800,000	pesos	=	marks	54552216
50,000	,,	=	,,	34095135
6,000	,,	=	,,	40914162
700	,,	=	,,	47733189
40	,,	=	,,	27276108
8	,,	=	,,	54552216
·6	,,	=	,,	4091416
·07	,,	=	,,	477331

58,421,923·12943 ÷ 37·726
= 1,548,585·14 marks : Ans.

Check this by the weight system. The mark is 3·584224 decigrams of pure gold. The Mexican peso is 244·4091849 decigrams of pure silver.

The sum is :—

$$\frac{856{,}748{\cdot}67 \div 37{\cdot}726 \times 244{\cdot}4091849}{3{\cdot}584224} = 1{,}548{,}585{\cdot}07 \text{ marks : Ans.}$$

TABLE XXIII.

ONE PART OF GOLD TO ONE PART OF SILVER.

NO. 1. EGYPTIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	4·499165	3·286174	3·261945	3·176471
2.	8·998330	6·572348	6·523890	6·352942
3.	13·497495	9·858522	9·785835	9·529413
4.	17·996660	13·144696	13·047780	12·705884
5.	22·495825	16·430870	16·309725	15·882355
6.	26·994990	19·717044	19·571670	19·058826
7.	31·494155	23·003218	22·833615	22·235297
8.	35·993320	26·289392	26·095560	25·411768
9.	40·492485	29·575566	29·357505	28·588239

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3·141378	3·025210	2·722689	2·419643
2.	6·282756	6·050420	5·445378	4·839286
3.	9·424134	9·075630	8·168067	7·258929
4.	12·565512	12·100840	10·890756	9·678572
5.	15·706890	15·126050	13·613445	12·098215
6.	18·848268	18·151260	16·336134	14·517858
7.	21·989646	21·176470	19·058823	16·937501
8.	25·131024	24·201680	21·781512	19·357144
9.	28·272402	27·226890	24·504201	21·776787

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	1·971705	1·493931	1·437556	0·5570398
2.	3·943410	2·987862	2·875112	1·1140796
3.	5·915115	4·481793	4·312668	1·6711194
4.	7·886820	5·975724	5·750224	2·2281592
5.	9·858525	7·469655	7·187780	2·7851990
6.	11·830230	8·963586	8·625336	3·3422388
7.	13·801935	10·457517	10·062892	3·8992786
8.	15·773640	11·951448	11·500448	4·4563184
9.	17·745345	13·445379	12·938004	5·0133582

NO. 2. BRITISH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	4·569898	3·337837	3·313227	3·226409
2.	9·139796	6·675674	6·626454	6·452818
3.	13·709694	10·013511	9·939681	9·679227
4.	18·279592	13·351348	13·252908	12·905636
5.	22·839490	16·689185	16·566135	16·132045
6.	27·419388	20·027022	19·879362	19·358454
7.	31·989286	23·364859	23·192589	22·584863
8.	36·559184	26·702696	26·505816	25·811272
9.	41·129082	30·040533	29·819043	29·037681

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3·190765	3·072771	2·765494	2·457683
2.	6·381530	6·145542	5·530988	4·915366
3.	9·572295	9·218313	8·296482	7·373049
4.	12·763060	12·291084	11·061976	9·830732
5.	15·953825	15·363855	13·827470	12·288415
6.	19·144590	18·436626	16·592964	14·746098
7.	22·335355	21·509397	19·358458	17·203781
8.	25·526120	24·582168	22·123952	19·661464
9.	28·716885	27·654939	24·889446	22·119147

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	2·002703	1·517418	1·460156	0·5657973
2.	4·005406	3·034836	2·920312	1·1315946
3.	6·008109	4·552254	4·380468	1·6973919
4.	8·010812	6·069672	5·840624	2·2631892
5.	10·013515	7·587090	7·300780	2·8289865
6.	12·016218	9·104508	8·760936	3·3947838
7.	14·018921	10·621926	10·221092	3·9605811
8.	16·021624	12·139344	11·681248	4·5263784
9.	18·024327	13·656762	13·141404	5·0921757

NO. 3. TURKISH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	5·058840	3·694958	3·667715	3·571609
2.	10·117680	7·389916	7·335430	7·143218
3.	15·176520	11·084874	11·003145	10·714827
4.	20·235360	14·779832	14·670860	14·286436
5.	25·294200	18·474790	18·338575	17·858045
6.	30·353040	22·169748	22·006290	21·429654
7.	35·411880	25·864706	25·674005	25·001263
8.	40·470720	29·559664	29·341720	28·572872
9.	45·529560	33·254622	33·009435	32·144481

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3·332151	3·401532	3·061379	2·720635
2.	7·064302	6·803064	6·122758	5·441270
3.	10·596453	10·204596	9·184137	8·161905
4.	14·128604	13·606128	12·245516	10·882540
5.	17·660755	17·007660	15·306895	13·603175
6.	21·192906	20·409192	18·368274	16·323810
7.	24·725057	23·810724	21·429653	19·044445
8.	28·257208	27·212256	24·491032	21·765080
9.	31·789359	30·613788	27·552411	24·485715

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	2·216975	1·679769	1·616381	0·6263329
2.	4·433950	3·359538	3·232762	1·2526658
3.	6·650925	5·039307	4·849143	1·8789987
4.	8·867900	6·719076	6·465524	2·5053316
5.	11·084875	8·398845	8·081905	3·1316645
6.	13·301850	10·078614	9·698286	3·7579974
7.	15·518825	11·758383	11·314667	4·3843303
8.	17·735800	13·438152	12·931048	5·0106632
9.	19·952775	15·117921	14·547429	5·6369961

NO. 4. PORTUGUESE EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	20·58336	15·03401	14·92317	14·53213
2.	41·16672	30·06802	29·84634	29·06426
3.	61·75008	45·10203	44·76951	43·59639
4.	82·33344	60·13604	59·69268	58·12852
5.	102·91680	75·17005	74·61585	72·66065
6.	123·50016	90·20406	89·53902	87·19278
7.	144·08352	105·23807	104·46219	101·72491
8.	164·66688	120·27208	119·38536	116·25704
9.	185·25024	135·30609	134·30853	130·78917

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	14·37158	13·84012	12·45611	11·06969
2.	28·74316	27·68024	24·91222	22·13938
3.	43·11474	41·52036	37·36833	33·20907
4.	57·48632	55·36048	49·82444	44·27876
5.	71·85790	69·20060	62·28055	55·34845
6.	86·22948	83·04072	74·73666	66·41814
7.	100·60106	96·88084	87·19277	77·48783
8.	114·97264	110·72096	99·64888	88·55752
9.	129·34422	124·56108	112·10499	99·62721

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9·020409	6·834628	6·576716	2·548418
2.	18·040818	13·669256	13·153432	5·096836
3.	27·061227	20·503884	19·730148	7·645254
4.	36·081636	27·338512	26·306864	10·193672
5.	45·102045	34·173140	32·883580	12·742090
6.	54·122454	41·007768	39·460296	15·290508
7.	63·142863	47·842396	46·037012	17·838926
8.	72·163272	54·677024	52·613728	20·387344
9.	81·183681	61·511652	59·190444	22·935762

No. 5. URUGUAYAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	21·50343	15·70603	15·59023	15·18171
2.	43·00686	31·41206	31·18046	30·36342
3.	64·51029	47·11809	46·77069	45·54513
4.	86·01372	62·82412	62·36092	60·72684
5.	127·51715	78·53015	77·95115	75·90855
6.	129·02058	94·23618	93·54138	91·09026
7.	150·52401	109·94221	109·13161	106·27197
8.	172·02744	125·64824	124·72184	121·45368
9.	193·53087	141·35427	140·31207	136·63539

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	15·01399	14·45877	13·01289	11·56451
2.	30·02798	28·91754	26·02578	23·12902
3.	45·04197	43·37631	39·03867	34·69353
4.	60·05596	57·83508	52·05156	46·25804
5.	75·06995	72·29385	65·06445	57·82255
6.	90·08394	86·75262	78·07734	69·38706
7.	105·09793	101·21139	91·09023	80·95157
8.	120·11192	115·67016	104·10312	92·51608
9.	135·12591	130·12893	117·11601	104·08059

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9·423618	7·140133	6·870693	2·662331
2.	18·847236	14·280266	13·741386	5·324662
3.	28·270854	21·420399	20·612079	7·986993
4.	37·694472	28·560532	27·482772	10·649324
5.	47·118090	35·700665	34·353465	13·311655
6.	56·541708	42·840798	41·224158	15·973986
7.	65·965326	49·980931	48·094851	18·636317
8.	75·388944	57·121064	54·965544	21·298648
9.	84·812562	64·261197	61·836237	23·960979

No. 6. U.S.A. EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	22·23970	16·24380	16·12403	15·70153
2.	44·47940	32·48760	32·24806	31·40306
3.	66·71910	48·73140	48·37209	47·10459
4.	88·95880	64·97520	64·49612	62·80612
5.	111·19850	81·21900	80·62015	78·50765
6.	133·43820	97·46280	96·74418	94·20918
7.	155·67790	113·70660	112·86821	109·91071
8.	177·91760	129·95040	128·99224	125·61224
9.	200·15730	146·19420	145·11627	141·31377

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	15·52806	14·95383	13·45845	11·96047
2.	31·05612	29·90766	26·91690	23·92094
3.	46·58418	44·86149	40·37535	35·88141
4.	62·11224	59·81532	53·83380	47·84188
5.	77·64030	74·76915	67·29225	59·80235
6.	93·16836	89·72298	80·75070	71·76282
7.	108·69642	104·67681	94·20915	83·72329
8.	124·22448	119·63064	107·66760	95·68376
9.	139·75254	134·58447	121·12605	107·64423

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9·746279	7·384609	7·105943	2·753488
2.	19·492558	14·769218	14·211886	5·506976
3.	29·238837	22·153827	21·317829	8·260464
4.	38·985116	29·538436	28·423772	11·013952
5.	48·731395	36·923045	35·529715	13·767440
6.	58·477674	44·307654	42·635658	16·520928
7.	68·223953	51·692263	49·741601	19·274416
8.	77·970232	59·076872	56·847544	22·027904
9.	87·716511	66·461481	63·953487	24·781392

NO. 7. ARGENTINE EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	23·05197	16·83708	16·71294	16·27500
2.	46·10394	33·67416	33·42588	32·55000
3.	69·15591	50·51124	50·13882	48·82500
4.	92·20788	67·34832	66·85176	65·10000
5.	115·25985	84·18540	83·56470	81·37500
6.	138·31182	101·02248	100·27764	97·65000
7.	161·36379	117·85956	116·99058	113·92500
8.	184·41576	134·69664	133·70352	130·20000
9.	207·46773	151·53372	150·41646	146·47500

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	16·09520	15·50000	13·95000	12·39731
2.	32·19040	31·00000	27·90000	24·79462
3.	48·28560	46·50000	41·85000	37·19193
4.	64·38080	62·00000	55·80000	49·58924
5.	80·47600	77·50000	69·75000	61·98655
6.	96·57120	93·00000	83·70000	74·38386
7.	112·66640	108·50000	97·65000	86·78117
8.	128·76160	124·00000	111·60000	99·17848
9.	145·85680	139·50000	125·55000	111·57579

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	10·10225	7·654321	7·365477	2·854055
2.	20·20450	15·308642	14·730954	5·708110
3.	30·30675	22·962963	22·096431	8·562165
4.	40·40900	30·617284	29·461908	11·416220
5.	50·51125	38·271605	36·827385	14·270275
6.	60·61350	45·925926	44·192862	17·124330
7.	70·71575	53·580247	51·558339	19·978385
8.	80·81800	61·234568	58·923816	22·832440
9.	90·92025	68·888889	66·289293	25·686495

No. 8. BRAZILIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	40·71963	29·74147	29·52218	28·74860
2.	81·43926	59·48294	59·04436	57·49720
3	122·15889	89·22441	88·56654	86·24580
4	162·87852	118·96588	118·08872	114·99440
5.	203·59815	148·70735	147·61090	143·74300
6.	244·31778	178·44882	177·13308	172·49160
7.	285·03741	208·19029	206·65526	201·24020
8.	325·75704	237·93176	236·17744	229·98880
9.	366·47667	267·67323	265·69962	258·73740

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	28·43100	27·37962	24·64166	21·89894
2.	56·86200	54·75924	49·28332	43·79788
3.	85·29300	82·13886	73·92498	65·69682
4.	113·72400	109·51848	98·56664	87·59576
5.	142·15500	136·89810	123·20830	109·49470
6.	170·58600	164·27772	147·84996	131·39364
7.	199·01700	191·65734	172·49162	153·29258
8.	227·44800	219·03696	197·13328	175·19152
9.	255·87900	246·41658	221·77494	197·09046

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	17·84488	13·52080	13·01058	5·041480
2.	35·68976	27·04160	26·02116	10·082960
3.	53·53464	40·56240	39·03174	15·124440
4.	71·37952	54·08320	52·04232	20·165920
5.	89·22440	67·60400	65·05290	25·207400
6.	107·06928	81·12480	78·06348	30·248880
7.	124·91416	94·64560	91·07406	35·290360
8.	142·75904	108·16640	104·08464	40·331840
9.	160·60392	121·68720	117·09522	45·373320

No. 9. Russian Equivalents to

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	43·22652	31·57249	31·3397	30·51850
2.	86·45304	63·14498	62·6794	61·03700
3.	129·67956	94·71747	94·0191	91·55550
4.	172·90608	126·28996	125·3588	122·07400
5.	216·13260	157·86245	156·6985	152·59250
6.	259·35912	189·43494	188·0382	183·11100
7.	302·58564	221·00743	219·3779	213·62950
8.	345·81216	252·57992	250·7176	244·14800
9.	389·03868	284·15241	282·0573	274·66650

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	30·18134	29·06524	26·15871	23·24715
2.	60·36268	58·13048	52·31742	46·49430
3.	90·54402	87·19572	78·47613	69·74145
4.	120·72536	116·26096	104·63484	92·98860
5.	150·90670	145·32620	130·79355	116·23575
6.	181·08804	174·39144	156·95226	139·48290
7.	211·26938	203·45668	183·11097	162·73005
8.	241·45072	232·52192	209·26968	185·97720
9.	271·63206	261·58716	235·42839	209·22435

	Siamese tical	Aus.-Hungarian crown.	Brit. Indian rupee	Persian kran
1.	18·94350	14·35320	13·81157	5·351858
2.	37·88700	28·70640	27·62314	10·703716
3.	56·83050	43·05960	41·43471	16·055574
4.	75·77400	57·41280	55·24628	21·407432
5.	94·71750	71·76600	69·05785	26·759290
6.	113·66100	86·11920	82·86942	32·111148
7.	132·60450	100·47240	96·68099	37·463006
8.	151·54800	114·82560	110·49256	42·814864
9.	170·49150	129·17880	124·30413	48·166722

No. 10. Japanese Equivalents to

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	44·61672	32·58789	32·34762	31·50000
2.	89·23344	65·17578	64·69524	63·00000
3.	133·85016	97·76367	97·04286	94·50000
4.	178·46688	130·35156	129·39048	126·00000
5.	213·08360	162·93945	161·73810	157·50000
6.	267·70032	195·52734	194·08572	189·00000
7.	312·31704	228·11523	226·43334	220·50000
8.	356·93376	260·70312	258·78096	252·00000
9.	401·55048	293·29101	291·12858	283·50000

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	31·15200	30·00000	27·00000	23·99479
2.	62·30400	60·00000	54·00000	47·98958
3.	93·45600	90·00000	81·00000	71·98437
4.	124·60800	120·00000	108·00000	95·97916
5.	155·76000	150·00000	135 00000	119·97395
6.	186·91200	180·00000	162·00000	143·96874
7.	218·06400	210·00000	189·00000	167·96353
8.	249·21600	240·00000	216·00000	191·95832
9.	280·36800	270·00000	243·00000	215·95311

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	19·55274	14·81481	14·25576	5·523978
2.	39·10548	29·62962	28·51152	11·047956
3.	58·65822	44·44443	42·76728	16·571934
4.	78·21096	59·25924	57·02304	22 095912
5.	97·76370	74·07405	71·27880	27·619890
6.	117·31644	88·88886	85·53456	33·143868
7.	136·86918	103·70367	99·79032	38·667846
8.	156·42192	118·51848	114·04608	44·191824
9.	175·97466	133·33329	128·30184	49·715802

NO. 11. NETHERLANDS EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	55·32827	40·41157	40·11362	39·06250
2.	110·65654	80·82314	80·22724	78·12500
3.	165·98481	121·23471	120·34086	117·18750
4.	221·31308	161·64628	160·45448	156·25000
5.	276·64135	202·05785	200·56810	195·31250
6.	331·96962	242·46942	240·68172	234·37500
7.	387·29789	282 88099	280·79534	273·43750
8.	442·62616	323·29256	320·90896	312·50000
9.	497·95443	363·70413	361·02258	351·56250

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	38·63095	37·20238	33·48214	29·75545
2.	77·26190	74·40476	66·96428	59·51090
3.	115·89285	111·60714	100·44642	89·26635
4.	154·52380	148·80952	133·92856	119·02180
5.	193·15475	186·01190	167·41070	148·77725
6.	231·78570	223·21428	200·89284	178·53270
7.	270·41665	260·41666	234·37498	208·28815
8.	309·04760	297·61904	267·85712	238·04360
9.	347·67855	334·82142	301·33926	267·79905

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	24·24695	18·37155	17·67828	6·850171
2.	48·49390	36·74310	35·35656	13·700342
3.	72·74085	55·11465	53·03484	20·550513
4.	96·98780	73·48620	70·71312	27·400684
5.	121·23475	91·85775	88·39140	34·250855
6.	145·48170	110·22930	106·06968	41·101026
7.	169·72865	128·60085	123·74796	47·951197
8.	193·97560	146·97240	141·42624	54·801368
9.	218·22255	165·34395	159·10452	61·651539

No. 12. CHILIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	60·93202	44·50453	44·17640	43·01882
2.	121·86404	89·00906	88·35280	86·03764
3.	182·79606	133·51359	132·52920	129·05646
4.	243·72808	178·01812	176·70560	172·07528
5.	304·66010	222·52265	220·88200	215·09410
6.	365·59212	267·02718	265·05840	258·11292
7.	426·52414	311·53171	309·23480	301·13174
8.	487·45616	356·03624	353·41120	344·15056
9.	548·38818	400·54077	397·58760	387·16938

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	42·54357	40·97031	36·87328	32·76913
2.	85·08714	81·94062	73·74656	65·53826
3.	127·63071	122·91093	110·61984	98·30739
4.	170·17428	163·88124	147·49312	131·07652
5.	212·71785	204·85155	184·36640	163·84565
6.	255·26142	245·82186	221·23968	196·61478
7.	297·80499	286·79217	258·11296	229·38391
8.	340·34856	327·76248	294·98624	262·15304
9.	382·89213	368·73279	331·85952	294·92217

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	26·70272	20·23225	19·46877	7·543969
2.	53·40544	40·46450	38·93754	15·087938
3.	80·10816	60·69675	58·40631	22·631907
4.	106·81088	80·92900	77·87508	30·175876
5.	133·51360	101·16125	97·34385	37·719845
6.	160·21632	121·39350	116·81262	45·263814
7.	186·91904	141·62575	136·28139	52·807783
8.	213·62176	161·85800	155·75016	60·351752
9.	240·32448	182·09025	175·21893	67·895721

No. 13. BRITISH INDIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	68·54848	50·06756	49·69841	48·39614
2.	137·09696	100·13512	99·39682	96·79228
3.	205·64544	150·20268	149·09523	145·18842
4.	274·19392	200·27024	198·79364	193·58456
5.	342·74240	250·33780	248·49205	241·98070
6.	411·29088	300·40536	298·19046	290·37684
7.	479·83936	350·47292	347·88887	338·77298
8.	548·38784	400·54048	397·58728	387·16912
9.	616·93632	450·60804	447·28569	435·56526

	Philippine dollar.	Columbian sol.	Bolivian boliviano	Russian rouble.
1.	47·86148	46·09156	41·48240	36·86525
2.	95·72296	92·18312	82·96480	73·73050
3.	143·58444	138·27468	124·44720	110·59575
4.	191·44592	184·36624	165·92960	147·46100
5.	239·30740	230·45780	207·41200	184·32625
6.	287·16888	276·54936	248·89440	221·19150
7.	335·03036	322·64092	290·37680	258·05675
8.	382·89184	368·73248	331·85920	294·92200
9.	430·75332	414·82404	373·34160	331·78725

	Siamese ticai.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	30·04054	22·76126	21·90234	8·486959
2.	60·08108	45·52252	43·80468	16·973918
3.	90·12162	68·28378	65·70702	25·460877
4.	120·16216	91·04504	87·60936	33·947836
5.	150·20270	113·80630	109·51170	42·434795
6.	180·24324	136·56756	131·41404	50·921754
7.	210·28378	159·32882	153·31638	59·408713
8.	240·32432	182·09008	175·21872	67·895672
9.	270·36486	204·85134	197·12106	76·382631

No. 14. SCANDINAVIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	82·98710	60·61348	60·16657	58·59000
2.	165·97420	121·22696	120·33314	117·18000
3.	248·96130	181·84044	180·49971	175·77000
4.	331·94840	242·45392	240·66628	234·36000
5.	414·93550	303·06740	300·83285	292·95000
6.	497·92260	363·68088	360·99942	351·54000
7.	580·90970	424·29436	421·16599	410·13000
8.	663·89680	484·90784	481·33256	468·72000
9.	746·88390	545·52132	541·49913	527·31000

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble
1.	57·94272	55·80000	50·22000	44·63031
2.	115·88544	111·60000	100·44000	89·26062
3.	173·82816	167·40000	150·66000	133·89093
4.	231·77088	223·20000	200·88000	178·52124
5.	289·71360	279·00000	251·10000	223·15155
6.	347·65632	334·80000	301·32000	267·78186
7.	405·59904	390·60000	351·54000	312·41217
8.	463·54176	446·40000	401·76000	357·04248
9.	521·48448	502·20000	451·98000	401·67279

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	36·36809	27·55556	26·51572	10·27460
2.	72·73618	55·11112	53·03144	20·54920
3.	109·10427	82·66668	79·54716	30·82380
4.	145·47236	110·22224	106·06288	41·09840
5.	181·84045	137·77780	132·57860	51·37300
6.	218·20854	165·33336	159·09432	61·64760
7.	254·57663	192·88892	185·61004	71·92220
8.	290·94472	220·44448	212·12576	82·19680
9.	327·31281	248·00004	238·64148	92·47140

No. 15. GERMAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	93·36063	68·19027	67·68750	65·91385
2.	186·72126	136·38054	135·37500	131·82770
3.	280·08189	204·57081	203·06250	197·74155
4.	373·44252	272·76108	270·75000	263·65540
5.	466·80315	340·95135	338·43750	329·56925
6.	560·16378	409·14162	406·12500	395·48310
7.	653·52441	477·33189	473·81250	461·39695
8.	746·88504	545·52216	541·50000	527·31080
9.	840·24567	613·71243	609·18750	593·22465

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	65·18566	62·77510	56·49759	50·20918
2.	130·37132	125·55020	112·99518	100·41836
3.	195·55698	188·32530	169·49277	150·62754
4.	260·74264	251·10040	225·99036	200·83672
5.	325·92830	313·87550	282·48795	251·04590
6.	391·11396	376·65060	338·98554	301·25508
7.	456·29962	439·42570	395·48313	351·46426
8.	521·48528	502·20080	451·98072	401·67344
9.	586·67094	564·97590	508·47831	451·88262

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	40·91417	31·00005	29·83023	11·55894
2.	81·82834	62·00010	59·66046	23·11788
3.	122·74251	93·00015	89·49069	34·67682
4.	163·65668	124·00020	119·32092	46·23576
5.	204·57085	155·00025	149·15115	57·79470
6.	245·48502	186·00030	178·98138	69·35364
7.	286·39919	217·00035	208·81161	80·91258
8.	327·31336	248·00040	238·64184	92·47152
9.	368·22753	279·00045	268·47207	104·03046

NO. 16. AUSTRO-HUNGARIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	109·7571	80·16621	79·57514	77·49000
2.	219·5142	160·33242	159·15028	154·98000
3.	329·2713	240·49863	238·72542	232·47000
4.	439·0284	320·66484	318·30056	309·96000
5.	548·7855	400·83105	397·87570	387·45000
6.	658·5426	480·99726	477·45084	464·94000
7.	768·2997	561·16347	557·02598	542·43000
8.	878·0568	641·32968	636·60112	619·92000
9.	987·8139	721·49589	716·17626	697·41000

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	76·63392	73·80000	66·42000	59·02719
2.	153·26784	147·60000	132·84000	118·05438
3.	229·90176	221·40000	199·26000	177·08157
4.	306·53568	295·20000	265·68000	236·10876
5.	383·16960	369·00000	332·10000	295·13595
6.	459·80352	442·80000	398·52000	354·16314
7.	536·43744	516·60000	464·94000	413·19033
8.	613·07136	590·40000	531·36000	472·21752
9.	689·70528	664·20000	597·78000	531·24471

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	48·09973	36·44444	35·06918	13·58899
2	96·19946	72·88888	70·13836	27·17798
3.	144·29919	109·33332	105·20754	40·76697
4.	192·39892	145·77776	140·27672	54·35596
5.	240·49865	182·22220	175·34590	67·94495
6.	288·59838	218·66664	210·41508	81·53394
7.	336·69811	255·11108	245·48426	95·12293
8.	384·79784	291·55552	280·55344	108·71192
9.	432·89757	327·99996	315·62262	122·30091

No. 17. FRENCH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	115·2599	84·18538	83·56469	81·37500
2.	230·5198	168·37076	167·12938	162·75000
3.	345·7797	252·55614	250·69407	244·12500
4.	461·0396	336·74152	334·25876	325·50000
5.	576·2995	420·92690	417·82345	406·87500
6.	691·5594	505·11228	501·38814	488·25000
7.	806·8193	589·29766	584·95283	569·62500
8.	922·0792	673·48304	668·51752	651·00000
9.	1037·3391	757·66842	752·08221	732·37500

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1	80·47600	77·50000	69·75000	61·98655
2.	160·95200	155·00000	139·50000	123·97310
3.	241·42800	232·50000	209·25000	185·95965
4.	321·90400	310·00000	279·00000	247·94620
5.	402·38000	387·50000	348·75000	309·93275
6.	482·85600	465·00000	418·50000	371·91930
7.	563·33200	542·50000	488·25000	433·90585
8.	643·80800	620·00000	558·00000	495·89240
9.	724·28400	697·50000	627·75000	557·87895

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	50·51124	38·27160	36·82739	14·27028
2.	101·02248	76·54320	73·65478	28·54056
3.	151·53372	114·81480	110·48217	42·81084
4.	202·04496	153·08640	147·30956	57·08112
5.	252·55620	191·35800	184·13695	71·35140
6.	303·06744	229·62960	220·96434	85·62168
7.	353·57868	267·90120	257·79173	99·89196
8.	404·08992	306·17280	294·61912	114·16224
9.	454·60116	344·44440	331·44651	128·43252

USE OF TABLE XXV.

Find the equivalent to Bolivian bolivianos 78,546·46 in Mexican pesos. See Table of Mexican Equivalents, and under Bolivia find the following figures :—

Bolivianos	70,000	=	57,997·00	pesos.
,,	8,000	=	6,628·23	,,
,,	500	=	414·26	,,
,,	40	=	33·14	,,
,,	6	=	4·97	,,
,,	·4	=	33	,,
,,	·06	=	5	,,
			65,077·98	

Check this by weight. The boliviano is 202·5 decigrams. The peso is 244·409184 decigrams.

The sum is :—

$$\frac{78,546{\cdot}46 \times 202{\cdot}5}{244{\cdot}409184} = 65,077{\cdot}98 \text{ pesos : Ans.}$$

TABLE XXV.

Multiples of the monetary signs for the mint issue weight of pure silver in each of 12 chief moneys of account for the mint issue weight of pure silver in 11 other chief silver moneys of account.

No. 1. SHANGHAE EQUIVALENTS TO

	Mexican peso.	Japanese yen.	Javanese rixdollar.	Philippine dollar.
1.	·7303964	·7250112	·7060134	·6982136
2.	1·4607928	1·4500224	1·4120268	1·3964272
3.	2·1911892	2·1750336	2·1180402	2·0946408
4.	2·9215856	2·9000448	2·8240536	2·7928544
5.	3·6519820	3·6250560	3·5300670	3·4910680
6.	4·3823784	4·3500672	4·2360804	4·1892816
7.	5·1127748	5·0750784	4·9420938	4·8874952
8.	5·8431712	5·8000896	5·6481072	5·5857088
9.	6·5735676	6·5251008	6·3541206	6·2839224

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·6723937	·6051543	·5377982	·4382379
2.	1·3447874	1·2103086	1·0755964	·8764758
3.	2·0171811	1·8154629	1·6133946	1·3147137
4.	2·6895748	2·4206172	2·1511928	1·7529516
5.	3·3619685	3·0257715	2·6889910	2·1911895
6.	4·0343622	3·6309258	3·2267892	2·6294274
7.	4·7067559	4·2360801	3·7645874	3·0676653
8.	5·3791496	4·8412344	4·3023856	3·5059032
9.	6·0515433	5·4463887	4·8401838	3·9441411

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·3320463	·3195162	·1238096
2.	·6640926	·6390324	·2476192
3.	·9961389	·9585486	·3714288
4.	1·3281852	1·2780648	·4952384
5.	1·6602315	1·5975810	·6190480
6.	1·9922778	1·9170972	·7428576
7.	2·3243241	2·2366134	·8666672
8.	2·6563704	2·5561296	·9904768
9.	2·9884167	2·8756458	1·1142864

No. 2. MEXICAN EQUIVALENTS TO

	Shanghae tael.	Japanese yen.	Javanese rixdollar.	Philippine dollar.
1.	1·36912	·0992627	·9666167	·9559379
2.	2·73824	·1985254	1·9332334	1·9118758
3.	4·10736	·2977881	2·8998501	2·8678137
4.	5·47648	·3970508	3·8664668	3·8237516
5.	6·84560	·4963135	4·8330835	4·7796895
6.	8·21472	·5955762	5·7997002	5·7356274
7.	9·58384	·6948389	6·7663169	6·6915653
8.	10·95296	·7941016	7·7329336	7·6475032
9.	12·32208	·8933643	8·6995503	8·6034411

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·9205874	·8285286	·7363101	·6000001
2.	1·8411748	1·6570572	1·4726202	1·2000002
3.	2·7617622	2·4855858	2·2089303	1·8000003
4.	3·6823496	3·3141144	2·9452404	2·4000004
5.	4·6029370	4·1426430	3·6815505	3·0000005
6.	5·5235244	4·9711716	4·4178606	3·6000006
7.	6·4441118	5·7997002	5·1541707	4·2000007
8.	7·3646992	6·6282288	5·8904808	4·8000008
9.	8·2852866	7·4567574	6·6267909	5·4000009

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·454611	·4374558	·1695101
2.	·909222	·8749116	·3390202
3.	1·363833	1·3123674	·5085303
4.	1·818444	1·7498232	·6780404
5.	2·273055	2·1872790	·8475505
6.	2·727666	2·6247348	1·0170606
7.	3·182277	3·0621906	1·1865707
8.	3·636888	3·4996464	1·3560808
9.	4·091499	3·9371022	1·5255909

No. 3. JAPANESE EQUIVALENTS TO

	Shanghae tael.	Mexican peso.	Javanese rixdollar.	Philippine dollar.
1.	1·379289	1·007428	·9737965	·9630384
2.	2·758578	2·014856	1·9475930	1·9260768
3.	4·137867	3·022284	2·9213895	2·8891152
4.	5·517156	4·029712	3·8951860	3·8521536
5.	6·896445	5·037140	4·8689825	4·8151920
6.	8·275734	6·044568	5·8427790	5·7782304
7.	9·655023	7·051996	6·8165755	6·7412688
8.	11·034312	8·059424	7·7903720	7·7043072
9.	12·413601	9·066852	8·7641685	8·6673456

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·9274253	·8346827	·7417792	·6045568
2.	1·8548506	1·6693654	1·4835584	1·2091136
3.	2·7822759	2·5040481	2·2253376	1·8136704
4.	3·7097012	3·3387308	2·9671168	2·4182272
5.	4·6371265	4·1734135	3·7088960	3·0227840
6.	5·5645518	5·0080962	4·4506752	3·6273408
7.	6·4919771	5·8427789	5·1924544	4·2318976
8.	7·4194024	6·6774616	5·9342336	4·8364544
9.	8·3468277	7·5121443	6·6760128	5·4410112

	Austrian florin.	British Indian rupee.	Persian kran.
1.	4579878	·4407051	·1707692
2.	·9159756	·8814102	·3415384
3.	1·3739634	1·3221153	·5123076
4.	1·8319512	1·7628204	·6830768
5.	2·2899390	2·2035255	·8538460
6.	2·7479268	2·6442306	1·0246152
7.	3·2059146	3·0849357	1·1953844
8.	3·6639024	3·5256408	1·3661536
9.	4·1218902	3·9663459	1·5369228

NO. 4. JAVANESE EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Philippine dollar.
1.	1·416404	1·034536	1·026909	·9889524
2.	2·832808	2·069072	2·053818	1·9779048
3.	4·249212	3·103608	3·080727	2·9668572
4.	5·665616	4·138144	4·107636	3·9558096
5.	7·082020	5·172680	5·134545	4·9447620
6.	8·498424	6·207216	6·161454	5·9337144
7.	9·914828	7·241752	7·188363	6·9226668
8.	11·331232	8·276288	8·215272	7·9116192
9.	12·747636	9·310824	9·242181	8·9005716

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·952381	·8571429	·7617394	·6207218
2.	1·904762	1·7142858	1·5234788	1·2414436
3.	2·857143	2·5714287	2·2852182	1·8621654
4.	3·809524	3·4285716	3·0469576	2·4828872
5.	4·761905	4·2857145	3·8086970	3·1036090
6.	5·714286	5·1428574	4·5704364	3·7243308
7.	6·666667	6·0000003	5·3321758	4·3450526
8.	7·619048	6·8571432	6·0939152	4·9657744
9.	8·571429	7·7142861	6·8556546	5·5864962

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·4703116	·4525639	·1753644
2.	·9406232	·9051278	·3507288
3.	1·4109348	1·3576917	·5260932
4.	1·8812464	1·8102556	·7014576
5.	2·3515580	2·2628195	·8768220
6.	2·8218696	2·7153834	1·0521864
7.	3·2921812	3·1679473	1·2275508
8.	3·7624928	3·6205112	1·4029152
9.	4·2328044	4·0730741	1·5782796

No. 5. PHILIPPINESE EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	1·432227	1·046093	1·03838	1·011171
2.	2·864454	2·092186	2·07676	2·022342
3.	4·296681	3·138279	3·11514	3·033513
4.	5·728908	4·184372	4·15352	4·044684
5.	7·161135	5·230465	5·19190	5·055855
6.	8·593362	6·276558	6·23028	6·067026
7.	10·025589	7·322651	7·26866	7·078197
8.	11·457816	8·368744	8·30704	8·089368
9.	12·890043	9·414837	9·34542	9·100539

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·96302	·866718	·7702488	·6276559
2.	1·92604	1·733436	1·5404976	1·2553118
3.	2·88906	2·600154	2·3107464	1·8829677
4.	3·85208	3·466872	3·0809952	2·5106236
5.	4·81510	4·333590	3·8512440	3·1382795
6.	5·77812	5·200308	4·6214928	3·7659354
7.	6·74114	6·067026	5·3917416	4·3935913
8.	7·70416	6·933744	6·1619904	5·0212472
9.	8·66718	7·800162	6·9322392	5·6489031

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·4755654	·4576195	·1773234
2.	·9511308	·9152390	·3546468
3.	1·4266962	1·3728585	·5319702
4.	1·9022616	1·8304780	·7092936
5.	2·3778270	2·2880975	·8866170
6.	2·8533924	2·7457170	1·0639404
7.	3·3289578	3·2033365	1·2412638
8.	3·8045232	3·6609560	1·4185872
9.	4·2800886	4·1185755	1·5959106

No. 6. COLUMBIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	1·487224	1·086263	1·078254	1·05
2.	2·974448	2·172526	2·156508	2·10
3.	4·461672	3·258789	3·234762	3·15
4.	5·948896	4·345052	4·313016	4·20
5.	9·436120	5·431315	5·391270	5·25
6.	8·923344	6·517578	6·469524	6·30
7.	10·410568	7·603841	7·547778	7·35
8.	11·897792	8·690104	8·626032	8·40
9.	13·385016	9·776367	9·704286	9·45

	Philippine dollar.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	1·0384	·9	·7998264	·6517579
2.	2·0768	1·8	1·5996528	1·3035158
3.	3·1152	2·7	2·3994792	1·9552737
4.	4·1536	3·6	3·1993056	2·6070316
5.	5·1920	4·5	3·9991320	3·2587895
6.	6·2304	5·4	4·7989584	3·9105474
7.	7·2688	6·3	5·5987848	4·5623053
8.	8·3072	7·2	6·3986112	5·2140632
9.	9·3456	8·1	7·1984376	5·8658211

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·4938272	·4751921	·1841326
2.	·9876544	·9503842	·3682652
3.	1·4814816	1·4255763	·5523978
4.	1·9753088	1·9007684	·7365304
5.	2·4691360	2·3759605	·9206630
6.	2·9629632	2·8511526	1·1047956
7.	3·4567904	3·3263447	1·2889282
8.	3·9506176	3·8015368	1·4730608
9.	3·4444448	4·2767289	1·6571934

No. 7. BOLIVIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	1·652471	1·206959	1·19806	1·166667
2.	3·304942	2·413918	2·39612	2·333334
3.	4·957413	3·620877	3·59418	3·500001
4.	6·609884	4·827836	4·79224	4·666668
5.	8·262355	6·034795	5·99030	5·833335
6.	9·914826	7·241754	7·18836	7·000002
7.	11·567297	8·448713	8·38642	8·166669
8.	13·219768	9·655672	9·58448	9·333336
9.	14·872239	10·862631	10·78254	10·500003

	Philippine dollar.	Columbian sol.	Russian rouble.	Siamese tical.
1.	1·153778	1·111111	·888696	·7241755
2.	2·307556	2·222222	1·777392	1·4483510
3.	3·461334	3·333333	2·666088	2·1725265
4.	4·615112	4·444444	3·554784	2·8967020
5.	5·768890	5·555555	4·443480	3·6208775
6.	6·922668	6·666666	5·332176	4·3450530
7.	8·676446	7·777777	6·220872	5·0692285
8.	9·230224	8·888888	7·109568	5·7934040
9.	10·384002	9.999999	7·998264	6·5175795

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·5486968	·5279912	·2045918
2.	1·0973936	1·0559824	·4091836
3.	1·6460904	1·5839736	·6137754
4.	2·1947872	2·1119648	·8183672
5.	2·7434840	2·6399560	1·0229590
6.	3·2921808	3·1679472	1·2275508
7.	3·8408776	3·6959384	1·4321426
8.	4·3895744	4·2239296	1·6367344
9.	4·9382712	4·7519208	1·8413262

NO. 8. RUSSIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	1·8594333	1·358123	1·34811	1·312785
2.	3·7188666	2·716246	2·69622	2·625570
3.	5·5782999	4·074369	4·04433	3·938355
4.	7·4377332	5·432492	5·39244	5·251140
5.	9·2971665	6·790615	6·74055	6·563925
6.	11·1565998	8·148738	8·08866	7·876710
7.	13·0160331	9·506861	8·43677	9·189495
8.	14·8754664	10·864984	10·78488	10·502280
9.	16·7348997	12·223107	12·13299	11·815065

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Siamese tical.
1.	1·298282	1·250271	1·125244	·8148742
2.	2·596564	2·500542	2·250488	1·6297484
3.	3·894846	3·750813	3·375732	2·4446226
4.	5·193128	5·001084	4·500976	3·2594968
5.	6·491410	6·251355	5·626220	4·0743710
6.	7·789692	7·501626	6·751464	4·8892452
7.	9·087974	8·751897	7·876708	5·7041194
8.	10·386256	10·002168	9·001952	6·5189936
9.	11·684538	11·252439	10·127196	7·3338678

	Austrian florin.	British Indian rupee.	Persian kran.
1.	·6174179	·594119	·2302157
2.	1·2348358	1·188238	·4604314
3.	1·8522537	1·782357	·6906471
4.	2·4696716	2·376476	·9208628
5.	3·0870895	2·970595	1·1510785
6.	3·7045074	3·564714	1·3812942
7.	4·3219253	4·158833	1·6115099
8.	4·9393432	4·752952	1·8417256
9.	5·5567611	5·347071	2·0719413

NO. 9. SIAMESE EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	2·281866	1·666666	1·654378	1·611028
2.	4·563732	3·333332	3·308756	3·222056
3.	6·845598	4·999998	4·963134	4·833084
4.	9·127464	6·666664	6·617512	6·444112
5.	11·409330	8·333330	8·271890	8·055140
6.	13·691196	9·999996	9·926268	9·666168
7.	15·973062	11·666662	11·580646	11·277196
8.	18·254928	13·333328	13·235024	12·888224
9.	20·536794	14·999994	14·889402	14·499252

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	1·59323	1·534312	1·380881	1·227183
2.	3·18646	3·068624	2·761762	2·454366
3.	4·77969	4·602936	4·142643	3·681549
4.	6·37292	6·137248	5·523524	4·908732
5.	7·96615	7·671560	6·904405	6·135915
6.	9·55938	9·205872	8·285286	7·363098
7.	11·15261	10·740184	9·666167	8·596281
8.	12·74584	12·274496	11·047048	9·817464
9.	14·33907	13·808808	12·427929	11·044647

	Austrian florin.	British Indian rupee.	Persian kran.
1.	0·7576849	·7290929	·2825169
2.	1·5153698	1·4581858	·5650338
3.	2·2730547	2·1872787	·8475507
4.	3·0307396	2·9163716	1·1300676
5.	3·7884245	3·6454645	1·4125845
6.	4·5461094	4·3745574	1·6951014
7.	5·3037943	5·1036503	1·9776183
8.	6·0614792	5·8327432	2·2601352
9.	6·8191641	6·5618361	2·5426521

No. 10. AUSTRIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	3·011629	2·199683	2·183464	2·12625
2.	6·023258	4·399366	4·366928	4·25250
3.	9·034887	6·599049	6·550392	6·37875
4.	12·046516	8·798732	8·733856	8·50500
5.	15·058145	10·998415	10·917320	10·63125
6.	18·069774	13·198098	13·100784	12·75750
7.	21·081403	15·397781	15·284248	14·88375
8.	24·093032	17·597464	17·467712	17·01000
9.	27·104661	19·797147	19·651176	19·13625

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	2·10276	2·025	1·8225	1·619648
2.	4·20552	4·050	3·6450	3·239296
3.	6·30828	6·075	5·4675	4·858944
4.	8·41104	8·100	7·2900	6·478592
5.	10·51380	10·125	9·1125	8·098240
6.	12·61656	12·150	10·9350	9·717888
7.	14·71932	14·175	12·7575	11·337536
8.	16·82208	16·200	14·5800	12·957184
9.	18·92484	18·225	16·4025	14·576832

	Siamese tical.	British Indian rupee.	Persian kran.
1.	1·31981	·962264	·3728685
2.	2·63962	1·924528	·7457370
3.	3·95943	2·886792	1·1186055
4.	5·27924	3·849056	1·4914740
5.	6·59905	4·811320	1·8643425
6.	7·91886	5·773584	2·2372110
7.	9·23867	6·735848	2·6100795
8.	10·55848	7·698112	2·9829480
9.	11·87829	8·660376	3·3558165

No. 11. BRITISH INDIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	3·129732	2·285945	2·269091	2·209633
2.	6·259464	4·571890	4·538182	4·419266
3.	9·389196	6·857835	6·807273	6·628899
4.	12·518928	9·143780	9·076364	8·838532
5.	15·648660	11·429725	11·345455	11·048165
6.	18·778392	13·715670	13·614546	13·257798
7.	21·908124	16·001615	15·883637	15·467431
8.	25·037856	18·287560	18·152728	17·677064
9.	28·167588	20·573505	20·421819	19·886697

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	2·185222	2·104412	1·893971	1·683164
2.	4·370444	4·208824	3·787942	3·366328
3.	6·555666	6·313236	5·681913	5·049492
4.	8·740888	8·417648	7·575884	6·732656
5	10·926110	10·522060	9·469855	8·415820
6.	13·111332	12·626472	11·363826	10·098984
7.	15·296554	14·730884	13·257797	11·782148
8.	17·481776	16·835296	15·151768	13·465312
9.	19·666998	18·939708	17·045739	15·148476

	Siamese tical.	Austrian florin.	Persian kran.
1.	1·371567	1·039216	·3874909
2.	2·743134	2·078432	·7749818
3.	4·114701	3·117648	1·1624727
4.	5·486268	4·156864	1·5499636
5.	6·857835	5·196080	1·9374545
6.	8·229402	6·235296	2·3249454
7.	9·600969	7·274512	2·7124363
8.	10·972536	8·313728	3·0999272
9.	12·344103	9·352944	3·4874181

NO. 12. PERSIAN EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	8·076918	5·899352	5·855856	5·702412
2.	16·153836	11·798704	11·711712	11·404824
3.	24·230754	17·698056	17·567568	17·107236
4.	32·307672	23·597408	23·423424	22·809648
5.	40·384590	29·496760	29·279280	28·512060
6.	48·461508	35·396112	35·135136	34·214472
7.	56·538426	41·295464	40·990992	39·916884
8.	64·615344	47·194816	46·846848	45·619296
9.	72·692262	53·094168	52·702704	51·321708

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	5·639414	5·430869	4·887782	4·343752
2.	11·278828	10·861738	9·775564	8·687504
3.	16·918242	16·292607	14·663346	13·031256
4.	22·557656	21·723476	19·551128	17·375008
5.	28·197070	27·154345	24·438910	21·718760
6.	33·836484	32·585214	29·326692	26·062512
7.	39·475898	38·016083	34·214474	30·406264
8.	45·115312	43·446952	39·102256	34·750016
9.	50·754726	48·877821	43·990038	39·093768

	Siamese tical.	Austrian florin.	British Indian rupee.
1.	3·539612	2·68191	2·580706
2.	7·079224	5·36382	5·161412
3.	10·618836	8·04573	7·742118
4.	14·158448	10·72764	10·322824
5.	17·698060	13·40955	12·903530
6.	21·237672	16·09146	15·484236
7.	24·777284	18·77337	18·064942
8.	28·316896	21·45528	20·645648
9.	31·856508	24·13719	23·226354

USE OF TABLE XXVII.

Find the equivalent to 17,298·4 British pounds in Mexican dollars, at the ratio of 36·269 between silver and gold.

See Table of Mexican Equivalents, and under British find

£10,000	=	2995952
7,000	=	20971664
200	=	5991904
90	=	26963568
8	=	23967616
·4	=	11983808

5182·51760768 × 36·269 = 187,964·7 pesos : Ans.

Check this by weight. The British pound is 73·223817 decigrams of pure gold. The Mexican peso is 244·409184 decigrams of pure silver.

The sum is :—

$$\frac{17{,}298{\cdot}4 \times 36{\cdot}269 \times 73{\cdot}223817}{244{\cdot}409184} = 187{,}964{\cdot}7 \text{ pesos : Ans.}$$

TABLE XXVII.

Multiples of Silver equivalents to Gold at the ratio of 1 to 1.

No. 1. SHANGHAE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·2222635	·2188233	·1976738	·04858293
2.	·4445270	·4376466	·3953476	·09716586
3.	·6667905	·6564699	·5930214	·14574879
4.	·8890540	·8752932	·7906952	·19433172
5.	1·1113175	1·0941165	·9883690	·24291465
6.	1·3335810	1·3129398	1·1860428	·29149758
7.	1·5558445	1·5317631	1·3837166	·34008051
8.	1·7781080	1·7505864	1·5813904	·38866344
9.	2·0003715	1·9694097	1·7790642	·43724637

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·04650421	·04496464	·04338024	·02455818
2.	·09300842	·08992928	·08676048	·04911636
3.	·13951263	·13489392	·13014072	·07367454
4.	·18601684	·17985856	·17352096	·09823272
5.	·23252105	·22482320	·21690120	·12279090
6.	·27902526	26978784	·26028144	·14734908
7.	·32552947	·31475248	·30366168	·17190726
8.	·37203368	·35971712	·34704192	·19646544
9.	·41853789	·40468176	·39042216	·22102362

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·02313395	·02241312	·01807394	·01641173
2.	·04626790	·04482624	·03614788	·03282346
3.	·06940185	·06723936	·05422182	·04923519
4.	·09253580	·08965248	·07229576	·06564692
5.	·11566975	·11206560	·09036970	·08205865
6.	·13880370	·13447872	·10844364	·09847038
7.	·16193765	·15689184	·12651758	·11488211
8.	·18507160	·17930496	·14459152	·13129384
9.	·20820555	·20171708	·16266546	·14770557

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·01458822	·01205007	·01071115	·009111025
2.	·02917644	·02410014	·02142230	·018222050
3.	·04376466	·03615021	·03213345	·027333075
4.	·05835288	·04820028	·04284460	·036444100
5.	·07294110	·06025035	·05355575	·045555125
6.	·08752932	·07230042	·06426690	·054666150
7.	·10211754	·08435049	·07497805	·063777175
8.	·11670576	·09640056	·08568920	·072888200
9.	·13129398	·10845063	·09640035	·081999225

	French franc.
1.	·008676047
2.	·017352094
3.	·026028141
4.	·034704188
5.	·043380235
6.	·052056282
7.	·060732329
8.	·069408376
9	·078084423

No. 2. Mexican Equivalents to

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·3043053	·2995952	·270639	·06651584
2.	·6086106	·5991904	·541278	·13303168
3.	·9129159	·8987856	·811917	·19954752
4.	1·2172212	1·1983808	1·082556	·26606336
5.	1·5215265	1·4979760	1·353195	·33257920
6.	1·8258318	1·7975712	1·623834	·39909504
7.	2·1301371	2·0971664	1·894473	·46561088
8.	2·4344424	2·3967616	2·165112	·53212672
9.	2·7387477	2·6963568	2·435751	·59864256

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·06366983	·06156196	·05939273	·03362309
2.	·12733966	·12312392	·11878546	·06724618
3.	·19100949	·18468588	·17817819	·10086927
4.	·25467932	·24624784	·23757092	·13449236
5.	·31834915	·30780980	·29696365	·16811545
6.	·38201898	·36937176	·35635638	·20173854
7.	·44568881	·43093372	·41574911	·23536163
8.	·50935864	·49249568	·47514184	·26898472
9.	·57302847	·55405764	·53453457	·30260781

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	0·3167314	·03068625	·02474539	·02246962
2.	0·6334628	·06137250	·04949078	·04493924
3.	0·9501942	·09205875	·07423617	·06740886
4.	1·2669256	·12274500	·09898156	·08987848
5.	1·5836570	·15343125	·12372695	·11234810
6.	1·9003884	·18411750	·14847234	·13481772
7.	2·2171198	·21480375	·17321773	·15728734
8.	2·5338512	·24549000	·19796312	·17975696
9.	2·8505826	·27617625	·22270851	·20222658

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·01997501	01649798	01466485	·01247408
2.	·03994602	·03299596	·02932970	·02494816
3.	·05991903	·04949394	·04399455	·03742224
4.	·07989204	·06599192	·05865940	·04989632
5.	·09986505	·08248990	·07332425	·06237040
6.	·11983806	·09898788	·08798910	·07484448
7.	·13981107	·11548586	·10265395	·08731856
8.	·15978408	·13198384	·11731880	·09979264
9.	·17975709	·14848182	·13198365	·11226672

	French franc
1.	·01187855
2.	·02375710
3.	·03563565
4.	·04751420
5.	·05939275
6.	·07127130
7.	·08314985
8.	·09502840
9.	·10690695

NO. 3. JAPANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·3065656	·3018205	·2726493	·06700991
2.	·6131312	·6036410	·5452986	·13401982
3.	·9196968	·9054615	·8179479	·20102973
4.	1·2262624	1·2072820	1·0905972	·26803964
5.	1·5328280	1·5091025	1·3632465	·33504955
6.	1·8393936	1·8109230	1·6358958	·40205946
7.	2·1459592	2·1127435	1·9085451	·46906937
8.	2·4525248	2·4145640	2·1811944	·53607928
9.	2·7590904	2·7163845	2·4538437	·60308919

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·06414275	·06201923	·05983389	·03387283
2.	·12828550	·12403846	·11966778	·06774566
3.	·19242825	·18605769	·17950167	·10161849
4.	·25657100	·24807692	·23933556	·13549132
5.	·32071375	·31009615	·29916945	·16936415
6.	·38485650	·37211538	·35900334	·20323698
7.	·44899925	·43413461	·41883723	·23710981
8.	·51314200	·49615384	·47867112	·27098264
9.	·57728475	·55817307	·53850501	·30485547

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·0319084	·03091418	·02492919	·02263652
2.	·0638168	·06182836	·04985838	·04527304
3.	·0957252	·09274254	·07478757	·06790956
4.	·1276336	·12365672	·09971676	·09054608
5.	·1595420	·15457090	·12464595	·11318260
6.	·1914504	·18548508	·14957514	·13581912
7.	·2233588	·21639926	·17450433	·15845564
8.	·2552672	·24731344	·19943352	·18109216
9.	·2871756	·27822762	·22436271	·20372868

	British Indian rupee.	Scandinavian crown.	German mark.	Aus-Hungarian crown.
1.	·02012137	·01662052	·01477378	·01256674
2.	·04024274	·03324104	·02954756	·02513348
3.	·06036411	·04986156	·04432134	·03770022
4.	·08048548	·06648208	·05909512	·05026696
5.	·10060685	·08310260	·07386890	·06283370
6.	·12072822	·09972312	·08864268	·07540044
7.	·14084959	·11634364	·10341646	·08796718
8.	·16097096	·13296416	·11819024	·10053392
9.	·18109233	·14958468	·13296402	·11310066

	French franc.
1.	·01196678
2.	·02393356
3.	·03590034
4.	·04786712
5.	·05983390
6.	·07180068
7.	·08376746
8.	·09573424
9.	·10770102

No. 4. JAVANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·3148148	·3099421	·2799859	·06881305
2.	·6296296	·6198842	·5599718	·13762610
3.	·9444444	·9298263	·8399577	·20643915
4.	1·2592592	1·2397684	1·1199436	·27525220
5.	1·5740740	1·5497105	1·3999295	·34406525
6.	1·8888888	1·8596526	1·6799154	·41287830
7.	2·2037036	2·1695947	1·9599013	·48169135
8.	2·5185184	2·4795368	2·2398872	·55050440
9.	2·8333332	2·7894789	2·5198731	·61931745

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·06586874	·06368808	·06144393	·0347843
2.	·13173748	·12737616	·12288786	·0695686
3.	·19760622	·19106424	·18433179	·1043529
4.	·26347496	·25475232	·24577572	·1391372
5.	·32934370	·31844040	·40721965	·1739215
6.	·39521244	·38212848	·46866358	·2087058
7.	·46108118	·44581656	·53010751	·2434901
8.	·52694992	·50950464	·49155144	·2782744
9.	·59281866	·57319272	·55299537	·3130587

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·03276701	·03174603	·0256	·02324564
2.	·06553402	·06349206	·0512	·04649128
3.	·09830103	·09523809	·0768	·06973692
4.	·13106804	·12698412	·1024	·09298256
5.	·16383505	·15873015	·1280	·11622820
6.	·19660206	·19047618	·1536	·13947384
7.	·22936907	·22222221	·1792	·16271948
8.	·26213608	·25396824	·2048	·18596512
9.	·29490309	·28571427	·2304	·20921076

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·02066281	·01706776	·01517132	·01290489
2.	·04132562	·03413552	·03034264	·02580978
3.	·06198843	·05120328	·04551396	·03871467
4.	·08265124	·06827104	·06068528	·05161956
5.	·10331405	·08533880	·07585660	·06452445
6.	·12397686	·10240656	·09102792	·07742934
7.	·14463967	·11947432	·10619924	·09033423
8.	·16530248	·13654208	·12137056	·10323912
9.	·18596529	·15360984	·13654188	·11614401

	French franc.
1.	·01228879
2.	·02457758
3.	·03686637
4.	·04915516
5.	·06144395
6.	·07373274
7.	·08602153
8.	·09831032
9.	·11059911

No. 5. PHILIPPINESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·3183316	·3134045	·2831136	·06958176
2.	·6366632	·6268090	·5662272	·13916352
3.	·9549948	·9402135	·8493408	·20874528
4.	1·2733264	1·2536180	1·1324544	·27832704
5.	1·5916580	1·5670225	1·4155680	·34790880
6.	1·9099896	1·8804270	1·6986816	·41749056
7.	2·2283212	2·1938315	1·9817952	·48707232
8.	2·5466528	2·5072360	2·2649088	·55665408
9.	2·8649844	2·8206405	2·5480224	·62623584

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·06660456	·06439954	·06213032	·03577288
2.	·13320912	·12879908	·12426064	·07034576
3.	·19981368	·19319862	·18639096	·10551864
4.	·26641824	·25759816	·24852128	·14069152
5.	·33302280	·32199770	·31065160	·17586440
6.	·39962736	·38639724	·37278192	·21103728
7.	.46623192	·45079678	·43491224	·24621016
8.	.53283648	·51519632	·49704256	·28138304
9.	.59944104	·57959586	·55917288	·31655592

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·03313305	·03210067	·02588598	·02350532
2.	·06626610	·06420134	·05177196	·04701064
3.	·09939915	·09630201	·07765794	·07051596
4.	·13253220	·12840268	·10354392	·09402128
5.	·16566525	·16050335	·12942990	·11752660
6.	·19879830	·19260402	·15531588	·14103192
7.	·23193135	·22470469	·18120186	·16453724
8.	·26506440	·25680536	·20708784	·18804256
9.	·29819745	·28890603	·23297382	·21154788

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·02089363	·01725842	·0153408	·01304905
2.	·04178726	·03451684	·0306816	·02609810
3.	·06268089	·05177526	·0460224	·03914715
4.	·08357452	·06903368	·0613632	·05219620
5.	·10446815	·0862910	·0767040	·06524525
6.	·12536178	·10355052	·0920448	·07829430
7.	·14625541	·12080894	·1073856	·09134335
8.	·16714904	·13806736	·1227264	·10439240
9.	·18804267	·15532578	·1380672	·11744145

	French franc
1.	·01242606
2.	·02485212
3.	·03727818
4.	·04970424
5.	·06213030
6.	·07455636
7.	·08698242
8.	·09940848
9.	·11183454

No. 6. COLUMBIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·3305556	·3254392	·2939852	·0722537
2.	·6611112	·6508784	·5879704	·1445074
3.	·9916668	·9763176	·8819556	·2167611
4.	1·3222224	1·3017568	1·1759408	·2890148
5.	1·6527780	1·6271960	1·4699260	·3612685
6.	1·9833336	1·9526352	1·7639112	·4335222
7.	2·3138892	2·2780744	2·0578964	·5057759
8.	2·6444448	2·6035136	2·3518816	·5780296
9.	2·9750004	2·9289528	2·6458668	·6502833

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·06916218	·06687248	·06451613	·03652352
2.	·13832436	·13374496	·12903226	·07304704
3.	·20748654	·20061744	·19354839	·10957056
4.	·27664872	·26748992	·25806452	·14609408
5.	·34581090	·33436240	·32258065	·18261760
6.	·41497308	·40123488	·38709678	·21914112
7.	·48413526	·46810736	·45161291	·25566464
8.	·55329744	·53497984	·51612904	·29218816
9.	·62245962	·60185232	·58064517	·32871168

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·03440536	·03333333	·02688000	·02440792
2.	·06881072	·06666666	·05376000	·04881584
3.	·10321608	·09999999	·08064000	·07322376
4.	·13762144	·13333332	·10752000	·09763168
5.	·17202680	·16666665	·13440000	·12203960
6.	·20643216	·19999998	·16128000	·14644752
7.	·24083752	·23333331	·18816000	·17085544
8.	·27524288	·26666664	·21504000	·19526336
9.	·30964824	·29999997	·24192000	·21967128

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·02169595	·01792115	·01592988	·01355014
2.	·04339190	·03584230	·03185976	·02710028
3.	·06508785	·05376345	·04778964	·04065042
4.	·08678380	·07168460	·06371952	·05420056
5.	·10847975	·08960575	·07964940	·06775070
6.	·13017570	·10752690	·09557928	·08130084
7.	·15187165	·12544805	·11150916	·09485098
8.	·17356760	·14336920	·12743904	·10840112
9.	·19526355	·16129035	·14336892	·12195126

	French franc.
1.	·01290323
2.	·02580646
3.	·03870969
4.	·05161292
5.	·06451615
6.	·07741938
7.	·09032261
8.	·10322584
9.	·11612907

No. 7. BOLIVIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·367284	·3615991	·3266502	·08028189
2.	·734568	·7231982	·6533004	·16056378
3.	1·101852	1·0847973	·9799506	·24084567
4.	1·469136	1·4463964	1·3066008	·32112756
5.	1·836420	1·8079955	1·6332510	·40140945
6.	2·203704	2·1695946	1·9599012	·48169134
7.	2·570988	2·5311937	2·2865514	·56197323
8.	2·938272	2·8927928	2·6132016	·64225512
9.	3·305556	3·2543919	2·9398518	·72253701

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·07684686	·07430276	·07168459	·04058169
2.	·15369372	·14860552	·14336918	·08116338
3.	·23054058	·22290828	·21505377	·12174507
4.	·30738744	·29721104	·28673836	·16232676
5.	·38423430	·37151380	·35842295	·20290845
6.	·46108116	·44581656	·43010754	·24349014
7.	·53792802	·52011932	·50179213	·28407183
8.	·61477488	·59442208	·57347672	·32465352
9.	·69162174	·66872484	·64516131	·36523521

	Russian rouble	Japanese yen.	Holland guilder.	Chilian condor.
1.	·03822818	·03703704	·02986667	·02711991
2.	·07645636	·07407408	·05973334	·05423982
3.	·11468454	·11111112	·08960001	·08135973
4.	·15291272	·14814816	·11946668	·10847964
5.	·19114090	·18518520	·14933335	·13559955
6.	·22936908	·22222224	·17920002	·16271946
7.	·26759726	·25925928	·20906669	·18983937
8.	·30582544	·29629632	·23893336	·21695928
9.	·34405362	·33333336	·26880003	·24407919

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·02410661	·01991239	·01769987	·01505571
2.	·04821322	·03982478	·03539974	·03011142
3.	·07231983	·05973717	·05309961	·04516713
4.	·09642644	·07964956	·07079948	·06022284
5.	·12053305	·09956195	·08849935	·07527855
6.	·14463966	·11947434	·10619922	·09033426
7.	·16874627	·13938673	·12389909	·10538997
8.	·19285288	·15929912	·14159896	·12044568
9.	·21695949	·17921151	·15929883	·13550139

	French franc.
1.	·01433692
2.	·02867384
3.	·04301076
4.	·05734768
5.	·07168460
6.	·08602152
7.	·10035844
8.	·11469536
9.	·12903228

No. 8. RUSSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·4132841	·4068873	·3675612	·9033673
2.	·8265682	·8137746	·7351224	1·8067346
3.	1·2398523	1·2206619	1·1026836	2·7101019
4.	1·6531364	1·6275492	1·4702448	3·6134692
5.	2·0664205	2·0344365	1·8378060	4·5168365
6.	2·4797046	2·4413238	2·2053672	5·4202038
7.	2·8929887	2·8482111	2·5729284	6·3235711
8.	3·3062728	3·2550984	2·9404896	7·2269384
9.	3·7195569	3·6619857	3·3080508	8·1303057

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·08647149	·8360875	·08066266	·04566431
2.	·17294298	1·6721750	·16132532	·09132862
3.	·25941447	2·5082625	·24198798	·13699293
4.	·34588596	3·3443500	·32265064	·18265724
5.	·43235745	4·1804375	·40331330	·22832155
6.	·51882894	5·0165250	·48397596	·27398586
7.	·60530043	5·8526125	·56463862	·31965017
8.	·69177192	6·6887000	·64530128	·36531448
9.	·77824341	7·5247875	·72596394	·41097879

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·04301603	·04167571	·03360729	·03051652
2.	·08603206	·08335142	·06721458	·06103304
3.	·12904809	·12502713	·10082187	·09154956
4.	·17206412	·16670284	·13442916	·12206608
5.	·21508015	·20837855	·16803645	·15258260
6.	·25809618	·25005426	·20164374	·18309912
7.	·30111221	·29172997	·23525103	·21361564
8.	·34412824	·33340568	·26885832	·24413216
9.	·38714427	·37508139	·30246561	·27464868

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·02712582	·0224063	·01991668	·01694135
2.	·05425164	·0448126	·03983336	·03388270
3.	·08137746	·0672189	·05975004	·05082405
4.	·10850328	·0896252	·07966672	·06776540
5.	·13562910	·1120315	·09958340	·08470675
6.	·16275492	·1344378	·11950008	·10164810
7.	·18988074	·1568441	·13941676	·11858945
8.	·21700656	·1792504	·15933344	·13553080
9.	·24413238	·2016567	·17925012	·15247215

	French franc.
1.	·01613253
2.	·03226506
3.	·04839759
4.	·06453012
5.	·08066265
6.	·09679518
7.	·11292771
8.	·12906024
9.	·14519277

NO. 9. SIAMESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·5071754	·4993253	·451065	·1108597
2.	·10143508	·9986506	·902130	·2217194
3.	1·5215262	1·4979759	1·353195	·3325791
4.	2·0287016	1·9973012	1·804260	·4434388
5.	2·5358770	2·4966265	2·255325	·5542985
6.	3·0430524	2·9959518	2·706390	·6651582
7.	3·5502278	3·4952771	3·157455	·7760179
8.	4·0574032	3·9946024	3·608520	·8868776
9.	4·5645786	4·4939277	4·059585	·9977373

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·1061164	·1026033	·09898787	·05603847
2.	·2122328	·2052066	·19797574	·11207694
3.	·3183492	·3078099	·29696361	·16811541
4.	·4244656	·4104132	·39595148	·22415388
5.	·5305820	·5130165	·49493935	·28019235
6.	·6366984	·6156198	·59392722	·33623082
7.	·7428148	·7182231	·69291509	·39226929
8.	·8489312	·8208264	·79190296	·44830776
9.	·9550476	·9234297	·89089083	·50434623

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·05278856	·05114373	·04124231	·03744937
2.	·10557712	·10228746	·08248462	·07489874
3.	·15836568	·15343119	·12372693	·11234811
4.	·21115424	·20457492	·16496924	·14979748
5.	·26394280	·25571865	·20621155	·18724685
6.	·31673136	·30686238	·24745386	·22469622
7.	·36951992	·35800611	·28869617	·26214559
8.	·42230848	·40914984	·32993848	·29959496
9.	·47509704	·46029357	·37118079	·33704433

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·03328835	·02749663	·02444141	·02079014
2.	·06657670	·05499326	·04888282	·04158028
3.	·09986505	·08248989	·07332423	·06237042
4.	·13315340	·10998652	·09776564	·08316056
5.	·16644175	·13748315	·12220705	·10395070
6.	·19973010	·16497978	·14664846	·12474084
7.	·23301845	·19247641	·17108987	·14553098
8.	·26630680	·21997304	·19553128	·16632112
9.	·29959515	·24746967	·21997269	·18711126

	French franc.
1.	·01979757
2.	·03959514
3.	·05939271
4.	·07919028
5.	·09898785
6.	·11878542
7.	·13858299
8.	·15838056
9.	·17817813

No. 10. AUSTRIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·669375	·6590144	·59532	·1463137
2.	1·338750	1·3180288	1·19064	·2926274
3.	2·008125	1·9770432	1·78596	·4389411
4.	2·677500	2·6360576	2·38128	·5852548
5.	3·346875	3·2950720	2·97660	·7315685
6.	4·016250	3·9540864	3·57192	·8778822
7.	4·685625	4·6131008	4·16724	1·0241959
8.	5·355000	5·2721152	4·76256	1·1705096
9.	6·024375	5·9311296	5·35788	1·3168233

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·1400534	·1354168	·1306452	·07396013
2.	·2801068	·2708336	·2612904	·14792026
3.	·4201602	·4062504	·3919356	·22188039
4.	·5602136	·5416672	·5225808	·29584052
5.	·7002670	·6770840	·6532260	·36980065
6.	·8403204	·8125008	·7838712	·44376078
7.	·9803738	·9479176	·9145164	·51772091
8.	1·1204272	1·0833344	1·0451616	·59168104
9.	1·2604806	1·2187512	1·1758068	·66564117

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·06967085	·0675	·054432	·04942604
2.	·13934170	·1350	·108864	·09885208
3.	·20901255	·2025	·163296	·14827812
4.	·27868340	·2700	·217728	·19770416
5.	·34835425	·3375	·272160	·24713020
6.	·41802510	·4055	·326592	·29655624
7.	·48769595	·4725	·381024	·34598228
8.	·55736680	·5400	·435456	·39540832
9.	·62703765	·6075	·489888	·44483436

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·04393429	·03629032	·03225802	·02743902
2.	·08786858	·07258064	·06451604	·05487804
3.	·13180287	·10887096	·09677406	·08231706
4.	·17573716	·14516128	·12903208	·10975608
5.	·21967145	·18145160	·16129010	·13719510
6.	·26360574	·21774192	·19354812	·16463412
7.	·30754003	·25403224	·22580614	·19207314
8.	·35147432	·29032256	·25806416	·21951216
9.	·39540861	·32661288	·29032218	·24695118

	French franc.
1.	·02612903
2.	·05225806
3.	·07838709
4.	·10451612
5.	·13064515
6.	·15677418
7.	·18290321
8.	·20903224
9.	·23516127

NO. 11. BRITISH INDIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	·6956251	·6848582	·618666	·1520516
2.	1·3912502	1·3697164	1·237332	·3041032
3.	2·0868753	2·0545746	1·855998	·4561548
4.	2·7825004	2·7394328	2·474664	·6082064
5.	3·4781255	3·4242910	3·093330	·7602580
6.	4·1737506	4·1091492	3·711996	·9123096
7.	4·8693757	4·7940074	4·330662	1·0643612
8.	5·5650008	5·4788656	4·949328	1·2164128
9.	6·2606259	6 1637238	5·567994	1·3684644

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·1455457	·1407273	·1357685	·07686054
2.	·2910914	·2814546	·2715370	·15372108
3.	·4366371	·4221819	·4073055	·23058162
4.	·5821828	·5629092	·5430740	·30744216
5.	·7277285	·7036365	·6788425	·38430270
6.	·8732742	·8443638	·8146110	·46116324
7.	1·0188199	·9850911	·9503795	·53802378
8.	1·1643656	1·1258184	1·0861480	·61488432
9.	1·3099113	1·2665457	1·2219165	·69174486

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·07240306	·07014707	·0565666	·05136432
2.	·14480612	·14029414	·1131332	·10272864
3.	·21720918	·21044121	·1696998	·15409296
4.	·28961224	·28058828	·2262664	·20545728
5.	·36201530	·35073535	·2828330	·25682160
6.	·43441836	·42088242	·3393996	·30818592
7.	·50682142	·49102949	·3959662	·35955024
8.	·57922448	·56117656	·4525328	·41091456
9.	·65162754	·63132363	·5090994	·46227888

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·04565721	·03771348	·03352304	·02851507
2.	·09131442	·07542696	·06704608	·05703014
3.	·13697163	·11314044	·10056912	·08554521
4.	·18262884	·15085392	·13409216	·11406028
5.	·22828605	·18856740	·16761520	·14257535
6.	·27394326	·22628088	·20113824	·17109042
7.	·31960047	·26399436	·23466128	·19960549
8.	·36525768	·30170784	·26818432	·22812056
9.	·41091489	·33942132	·30170736	·25663563

	French franc.
1.	·0271537
2.	·0543074
3.	·0814611
4.	·1086148
5.	·1357685
6.	·1629222
7.	·1900759
8.	·2172296
9.	·2443833

NO. 12. PERSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
.	1·795204	1·767418	1·596595	0·3924004
2.	3·590408	3·534836	3·193190	0·7848008
3	5·385612	5·302254	4·789785	1·1772012
4.	7·180816	7·069672	6·386380	1·5696016
5.	8·976020	8·837090	7·982975	1·9620020
6.	10·771224	10·604508	9·579570	2·3544024
7.	12·566428	12·371926	11·176165	2·7468028
8.	14·361632	14·139344	12·772760	3·1392032
9.	16·156836	15·906762	14·369355	3·5316036

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	·3756107	·3631757	·3503786	·1983544
2.	·7512214	·7263514	·7007572	·3967088
3.	1·1268321	1·0895271	1·0511358	·5950632
4.	1·5024428	1·4527028	1·4015144	·7934176
5.	1·8780535	1·8158785	1·7518930	·9917720
6.	2·2536642	2·1790542	2·1022716	1·1901264
7.	2·6292749	2·5422299	2·4526502	1·3884808
8.	3·0048856	2·9054056	2·8030288	1·5868352
9.	3·3804963	3·2685813	3·1534074	1·7851896

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	·186851	·181029	·1459818	·1325562
2.	·373702	·362058	·2919636	·2651124
3.	·560553	·543087	·4379454	·3976686
4.	·747404	·724116	·5839272	·5302248
5.	·934255	·905145	·7299090	·6627810
6.	1·121106	1·086174	·8758908	·7953372
7.	1·307957	1·267203	1·0218726	·9278934
8.	1·494808	1·448232	1·1678544	1·0604496
9.	1·681659	1·629261	1·3138362	1·1930058

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	·1178278	·0973274	·08651311	·07358901
2.	·2356556	·1946548	·17302622	·14717802
3.	·3534834	·2919822	·25953933	·22076703
4.	·4713112	·3893096	·34605244	·29435604
5.	·5891390	·4866370	·43256555	·36794505
6.	·7069668	·5839644	·51907866	·44153406
7.	·8247946	·6812918	·60559177	·51512307
8.	·9426224	·7786192	·69210488	·58871208
9.	1·0604502	·8759466	·77861799	·66230109

	French franc.
1.	·07007573
2.	·14015146
3.	·21022719
4.	·28030292
5.	·35037865
6.	·42045438
7.	·49053011
8.	·56060584
9.	·63068157

TABLE OF THE PRESENT CURRENCIES OF THE DIFFERENT COUNTRIES AND ISLANDS OF THE WORLD.*

This is presented in six divisions—Europe, Asia, Africa, America, Australia, and the Islands of the seas. The following signs attached to the names of places indicate—*a*, possession of a mint; *g*, automatic gold; *g*ı, gold-cum-coinage charge; *s*, automatic silver; *s*ı, silver-cum-coinage charge; *sc*, silver-cum-counter charge; *ipg*, inconvertible paper based on gold; *ips*, inconvertible paper based on silver. Attached to the names of the islands are letters which indicate the power to which each belongs—*B*, Great Britain; *F*, France; *G*, Germany; *D*, Dutch; *S*, Spain; *Ge*, Greece; *I*, Italy; *J*, Japan; *Da*, Danish; *P*, Portugal; *C*, Chili; *T*, Turkey.

Europe.—Austria-Hungary, *a ipg*; Belgium, *a g*ı; Bulgaria, *g*ı; Denmark, *a g*ı; Finland, *g*ı; France, *a g*ı; Germany, *a g*ı; Gibraltar, Greece, *ipg*; Italy, *a ip*; Netherlands, *a g*ı; Norway, *g*ı; Portugal, *a ipg*; Roumania, *ipg*; Russia, *a g*; Servia, *ipg*; Spain, *a ipg*; Sweden, *g*ı; Switzerland, *a g*ı; Turkey.

Asia.—Afghanistan, *s*; Aleppo, Anam, *s*; Arabia, Asiatic Turkey, Bagdad, Beloochistan, *s*; Burma, *sc*; Cambodia, *s*; Camboja, *s*; China, *a s*; Cochin China, *s*; Corea, *s*; India, *a sc*; Malay Peninsula, *s*; Malacca, *s*; Mongolia, *s*; Persia, *a s*ı; Russia in Asia, Siam, *a s*ı; Syria, Thibet, Tonquin, *s*; Turkestan, *s*.

Africa.—Abyssinia, Algiers, Ashantee, Basutoland, *g*; Bechuanaland, *g*; British East Africa, *s*; Cameroons, Cape of Good Hope, *g*; Congo Free State, *g*; Damara Land, *s*; Egypt, *g*; French Congo, Gambia, Gold Coast, Lagos, Liberia, *g*; Morocco, Mozambique, Natal, *g*; Orange River Free State, Senegambia, Soudan, South African Republic, *g*; Tripoli, Tunis, Zanzibar, Zululand, *g*.

America.—North: Alaska, Canada, *g*; Mexico, *a s*ı; United States, *a g*; *Central:* Belize, British Honduras, *g*; Costa Rica, *ips*; Guatemala, Honduras, Mosquito, Nicaragua, Salvador, *a ips*; *South:* Argentine Republic, *a ipg*; Bolivia, *a s*ı; Brazil, *a ipg*; British Guiana, *g*; Chili, *ipg*; Dutch Guiana, *g*; Ecuador, French Guiana, *g*; New Granada, Paraguay, *ipg*; United States of Columbia, *ips*; Uruguay, *ipg*; Venezuela, *g*ı.

Australia.—New South Wales, *a g*ı; Queensland, *g*ı; South Australia, *g*ı; Victoria, *a g*ı; West Australia, *g*ı.

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* The writer is unable to complete this table to his satisfaction. It may be said that the inhabitants of the whole of the East and the Isles of the Pacific use silver, and that metal is the standard. In the Isles of the Atlantic gold is the standard.

g; Cyclades, N. Sporades, Corfu, Cephalonia, Zante, *ipg*, *Ge*; French Possessions, *g*; Spanish Possessions, *g*; Danish Possessions, *g*; Portuguese Possessions, *g*; Dutch Possessions, *g*; Hayti, *g*.

Mediterranean.—British Possessions, *g*; Spanish Possessions, Italian Possessions, Turkish Possessions.

Indian.—Aden, *g*, *B*; British Possessions, *sc*; Ceylon, *sc*; French Possessions, *s*; Maldives, Mauritius, *sc*; Laccadives, Puli Penang, *s*, *B*; Socotra, *B*; Seychelle Archipelago.

Pacific.—Aleuthian, British Possessions, *s*; Dutch Possessions, *sc*; Spanish Possessions, *a s*; German Possessions, *g*; Japan, *a s*; Japanese Possessions, *s*; French Possessions, *s*; Hawaii, *s*; New Zealand, *g*, *B*; Vancouver, *g*, *B*.

The people of these parts of continents and islands of the world have set before them a definite metal measure of value in a weight of pure gold or pure silver which they desire to act through price as an equivalent in exchange for all the internal interchanges of the country they live in. As their minds become exercised upon the subject they will perceive this, and also the vast advantage to the whole world of the possession of one only substance as an intermediary commodity both as a measure of value and a means of payment.

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MR. J. H. NORMAN'S WRITINGS IN CONNECTION WITH MONEY.

"AN Antidote to Bimetallism," prepared for the inaugural meeting of the Bimetallic League held in the Mansion House, London, in 1882.

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Mr. C. W. Vincent, Librarian to the Reform Club, is an enthusiast over the unit-of-weight system, and thinks that it has brought the subject of money within the comprehension of every one. Presentations of Mr. Norman's handsome show-cases were made in 1891 to the Imperial Institute by Mr. George Matthey, F.R.S., to the London School Board by Sir Edwyn S. Dawes, K.C.M.G., to the City Liberal Club by Messrs. J. H. Tritton and J. Macandrew, to the Chartered Accountants' Institute of England and Wales by the late Mr. Arthur Cooper, of Messrs. Cooper Brothers, Accountants. Mr. James M. Hall and Mr. Frederick W. Lawrence have presented copies of the book with maps, illustrative of the Foreign and Colonial Exchanges, to the following Government Departments: The Education, Treasury, Board of Trade, Foreign, Colonial, Admiralty and War Offices.

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MONEY'S WORTH

OR THE

ARITHMETIC OF THE MECHANISM

OF THE

WORLD'S PRESENT INTERCHANGES

OF

SEVEN MONETARY AND CURRENCY INTERMEDIARIES

AND OF ALL OTHER THINGS;

WITH EXERCISES FOR

THE TRAVELLER, THE TRADER, AND THE FINANCIER

BY

JOHN HENRY NORMAN

BEING THE SYSTEMATICALLY ARRANGED ADDENDA OF 1898
AND 1899 TO HIS "UNIVERSAL CAMBIST";
WITH SEVEN NEW TABLES

TO BE OBTAINED FROM

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JULY, 1899

Dedicated

TO

THE MEMORY OF LOCKE

AND TO

JOHN K. INGRAM, LL.D.

AND

PROFESSOR GOLDWIN SMITH, D.C.L.

WHO BY THEIR

INTEREST IN THE SUBJECT AND COMMUNICATIONS

HAVE SPECIALLY ENCOURAGED THE AUTHOR.

ALSO

TO ALL WHO USE MONEY

ESPECIALLY

THE INSTRUCTORS OF YOUTH.

Extract from a Letter by Locke to Mr. Molyneux, dated November 16th, 1695.

"I find everybody almost looks upon it (money) as a mystery; to me there appears none at all in it. 'Tis but stripping it of the cant which all men that talk of it involve it in, and there is nothing easier:—*Lay by the arbitrary names pence and shillings, and consider and speak of it as grains and ounces of silver, and 'tis as easy as telling of twenty.*"

PREFACE

It is intended that fair Paris should make a surpassing display of the fruits of the brains and limbs of men, assisted by all the forces of nature yet brought under his dominion, to commence in April, 1900.

The Exhibition will contain most things both necessary and desirable in human and domestic animal life.

Everything, the thoughts of men in books and material objects exposed, will be priced, and the prices will be those of the countries exposing the goods, or in francs and centimes.

An inhabitant of each country in the world inspecting these things in 1900 should be able to convert the various prices into those of his own country with facility through the information furnished in this pamphlet.

If the world possessed one monetary system, and all prices were definite weights of, say, pure gold in decigrams without any other nomenclature, children could understand all prices at a glance. There would not be anything to explain and therefore no requirement for this pamphlet.

But the world at present has seven monetary and currency systems, the arithmetic and whole working of which are given and exemplified for the traveller, the trader, and the financier herein.

The only true definition of money is, that it is "The standard substance of each country in the form of standard bullion and coin appropriated to currency purposes."

Money thus defined is the most liquid wealth that any one can possess.

Credit embodied in credit instruments is something perfectly different from money. It is not wealth. Credit is a means whereby a person A obtains the possession of the property or wealth of person B, through the assistance of persons C or C

and D., C and D representing the drawee and discounter of the credit instrument, A being the drawer of the same instrument.

Book debts, promises to pay a weight of pure gold embodied in credit instruments are saleable or discountable things, and the fulfilment of the promise or the payment of the book debt are enforceable at law, but because of this credit instruments do not become wealth.

To prove this, take an instance. There are Frs. 25,000 worth of goods being sold over the counter which have passed through the hands of numerous owners in the stages of manufacture from their raw to their finished state.

It is within the experience of present business that credit instruments for more than Frs. 50,000 are in circulation based on the goods which are being sold over the counter.

In this instance of the sale of goods over the counter for Frs. 25,000 and the credit instruments for Frs. 50,000 in circulation founded upon the honest use of credit, the basis of which is the wealth in the goods: can the portion of the world's wealth embodied in the credit instrument be more than the cost of the paper and printing the promises to pay money? The charge that C makes on A for the use of his credit and the interest that D makes by discounting bills are means for promoting individual and national wealth, so long as bankruptcy does not occur to prevent the liquidation of such instruments.

Is it not a monstrous delusion to assert that until these Frs. 50,000 of credit on pieces of paper of no intrinsic worth are liquidated, they are wealth? and upon liquidation or destruction of them the wealth has gone?

The truth is that a credit instrument from a book debt to a state bank note is a promise to pay money, grains of pure gold in this country. The promise is constituted both a credit and a debit instrument. There is to each of such instruments both a payer and payee. By what is called banking facilities, such highly useful but often dangerously abused documents are extinguished by a debit and a credit entry at the same time in books kept for the purpose.

I do not know a single professor of political economy who defines credit as wealth; but I have met with some who assert

that money is not wealth. This latter false teaching results from the jumbling up of money with credit, and writing and speaking of both under the term money, which lands the teachers in hopeless confusion and error.

I would be the last person in the world to belittle the tremendous importance of credit. Without it the world would well nigh go back to barbarism; but at the same time I would have every one put a just estimate upon the paramount importance of the possession of a scientific effective measure of value.

There are two senses to the words "Money's worth." One is: that which is given in exchange for the standard substance presented as a measure of value and a circulating medium, and another, that which gives to money or the standard substance its purchasing power. It is the cost of production of the standard substance which gives it purchasing power. Value-giving factors, which are past and present labour, with or without the payment of rent, and with or without an unearned increment, constitutes the value of gold as of most other things. It is in this latter sense that I use the term Money's worth.

Too much importance cannot be attached to the possession of the knowledge of the simple arithmetic of the world's present mechanism of the interchanges of things. It will in time be recognized as a vastly valuable sociological acquirement, without which no one's education is complete. I would have all young persons exercised in it during their school days.

If an interest in postage stamps has added to the knowledge of geography, much more would an interest in real money and abortive currencies contribute additional interest to the same subject, besides safeguarding the individual against the attacks of unscrupulous money-changers.

Each country in the world should, as speedily as it is prepared for it, be enlightened upon the subjects I have dealt with by means of an illustrated lecture, which could not fail to be of an intensely interesting nature.

I have received most gratifying testimony to the appreciation of my work from experts in the science of money, financiers,

exchange bankers and brokers, merchants and others, to all of whom I desire to offer my heartiest thanks.

I therefore earnestly invite the most serious attention, with unbiassed mind, of every one—especially rulers, statesmen, legislators, and economists—to this analysis of the world's prices and foreign and colonial exchanges of intermediaries; and to the simple arithmetical demonstration to travellers, traders, and financiers of their effects upon the interchanges of things between man and man and community and community.

Sound bases for the construction of monetary systems cannot be expected from those who are totally ignorant of the knowledge possessed both theoretically and practically by the magnates of the money power of the world. Striking evidence of this can be seen in the first 8393 questions put to and answered by twenty-five examinees, of whom ten were either past or present servants of the State, nine were traders and producers, and six were financiers and bankers, before the India Office Committee upon schemes for providing an effective metal monetary system for British India.

Lord Rothschild's evidence, under 133 interrogatories before this Committee, of what financiers have done and can do, of what Governments can and cannot do, and what British India's trade could possibly do or not do, with the absolute requisite of what it must do to provide and keep an effective gold standard, are a few scientific truths among the evidence given under the remaining 8260 questions in the first blue book of 319 pages.

I repeat the suggestion with which I closed my pamphlet upon "British India's Future Standard Currency" :—"Whether it is not a pressing need on every one who has the mind for it, especially statesmen and legislators, to do their utmost to probe to the bottom and discover a sound foundation for the world's interchanges of things, and a corrective to the injustice arising from the machinery at present in use?"

I would add that at the end of May a dinner was given in Boston, U.S.A., to Mr. Charles R. Flint—apparently a Trust organizer, or even something more comprehensive—who addressed an assembly of presidents of fourteen local banks, representatives of Trust Companies, and financiers, upon "Industrial Combina-

tion." In an able speech embracing the "march of improvements, benefits of the new era of consolidation, and a danger of the future," he said: "Subsidy-seekers claim that trade follows the flag: merchants know that trade follows the price, and the flag follows the trade." If this be so, how vastly important is it that all who have the ability should understand and teach what the world's present seven different descriptions of prices consist of.

The reader who does not understand but desires to know the chain rule of arithmetic is recommended to read Section II., pp. 35-37, first.

22, Lee Terrace, S.E.,
July, 1899.

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Section £.

THE WORLD'S INTERCHANGES OF THINGS EFFECTED BY MEANS OF A SCIENTIFIC AUTOMATIC GOLD MEDIUM.

Assume that the whole world used the same weights and measures, say the metric. That it is the universal practice that nothing is done by the State to fetter or favour the substance gold. That there is no coinage charge. That each country has an ample amount of gold in currency and reserve for the conduct of its business. Assume further that the nomenclature of money is confined to weight. The intermediary under these conditions would be a scientific automatic gold one, and credit instruments would be converted into gold for the weight expressed upon them without question, delay, or expense, at the will of the holder of them. There would be no prices of intermediaries. Prices would be weights of gold. The exchange of the gold intermediary would be a small percentage more or a small percentage less than a given weight. This percentage variation would be confined to a narrow limit. It would embrace the cost of transmission of gold and a small profit to those who employ a dealer in the exchange. The variation could not well be more than 1 and ½ per cent. between the most distant ports of the earth. It may be fairly asserted that the people of the earth affected by and engaged in intercolonial and international trade number not far short of 1,400,000,000, inhabiting 350 or more distinctive portions of continents and islands. These use, desire, or intend to use one of the two metals, gold and silver, as their standard substance, measure of value, and equivalent in exchange. In

fact, they have long ago appointed definite weights of these substances under various names, such as the pound, the franc, the dollar, for this purpose.

It may be permissible to introduce the following from my "Universal Cambist":—

"**Purchase and Sale of Things in Combination with the Exchange of Intermediaries.**—It should be no difficult matter to one who is accustomed to instruct children to practise them in the interchanges of things between countries using the five great diverse intermediaries, namely, pure gold, pure silver, silver-cum-counter charge, inconvertible paper based on gold, inconvertible paper based on silver. For instance, as one method, get five bags made, one labelled British Isles; in this place a miniature bale of piece goods, and counters to represent grains of gold. Another bag labelled China, in this place a miniature hank of silk and counters to represent taels and cash. Another labelled British India, with a miniature chest of tea and counters to represent fictitious rupees. Another labelled Argentine Republic, with a miniature bag of wheat and paper to represent pesos based on gold. Another bag labelled Columbia, U.S., with a miniature bag of coffee and paper to represent sols based on silver. Taking from the commercial intelligence in the daily papers the prices of goods and the ratios of the day existing between the five intermediaries used in these countries, and applying them to the purchase in one country, and the sale in another of small quantities of the five descriptions of goods mentioned, the combined working of prices and rates of exchange of the five intermediaries could be taught, and should be mastered by youths before they go out into the world."

"The teacher will make himself master of Chapter VI. on the scientific mode of working the foreign and colonial exchanges of the world's present seven intermediaries. We will suppose that the teacher is thoroughly practised in all that this book is intended to impart. Doubtless each will have a method of teaching the mechanism of the interchanges of things, prices, and the exchanges of money and currency intermediaries. Perhaps the writer may be permitted to indicate the steps that

he thinks it may be expedient to take. I. Tear away monetary signs, and expose the things signified. These things are simply either a weight of gold, or a weight of silver as the bases of each of the seven intermediaries. This has been well done by Miss Sharland in her 'Coin of the Realm, What is it?' and children have demonstrated that they can understand and practise it. II. Assume that the whole world has only one substance as its measure of value and ultimate means of payment, also that the whole world has only one measure of weight, say the metric. Prices throughout the whole world would be more or less metric weight of gold. A rate of exchange would be more or less metric weight of gold, and the fluctuation limited to 1 and ½ per cent. on the weight exchanged. International prices for the same classes and qualities of things would be seen and measured at a glance. International and intercolonial exchanges of one intermediary would be as easy of comparison. The mind readily perceives that should this great desideratum ever be accomplished, the imputed mysteries about money, prices, and the foreign and colonial exchanges of intermediaries will have vanished like fog before a strong wind. III. The next step in instruction is to show that there is no mystery about these things, although the world has seven monetary and currency intermediaries, entailing seven different descriptions of prices, and forty-nine different descriptions of exchanges of the seven intermediaries. Pupils must become familiar with the mode of dealing with each intermediary theoretically and practically. The science of and practice with money may possibly in the distant future centre in and around metric weights of pure gold. At present it centres in twenty-five different weights of pure gold and silver, each clothed with confusing monetary signs, and five of the seven intermediaries associated with and smothered by coinage charges, counters, or inconvertible paper, the creation of legislation."

A Masterly Skill in Bullion and Coin.

"A masterly skill in bullion and coin" is the foundation of the science of money, and the key to the world's interchanges

of currency intermediaries, and the exchanges of all other things. He who understands and works the foreign and colonial exchanges of intermediaries, and of all other things by actual or basal weights of the pure standard metal has this skill.

The unit of weight system is the tool to strip monetary signs from weights and to clothe weights with monetary signs. Every one should be proficient in the use of this tool.

There is no natural impediment to every one becoming expert in the use of this tool, and he that is so expert should find it easy to rise to the comprehension of the science of money.

NORMAN'S UNIT OF WEIGHT SYSTEM.

It is to the unit of weight system alone that I owe all I have been able to do towards the enlightenment of the world since 1875 upon the subject of money, currency substitutes, the constituents of prices throughout the world, and the mechanism of the interchanges of things between man and man and community and community.

Fifty years ago, as a practical merchant in Calcutta, I worked sums in connection with produce and currency exchanges by the chain rule. But my experience was confined to one sphere of operation—the trade between India and England. The act of formulation of the unit of weight system for the whole world in 1875, was in itself an expansion of view which has continuously, but slowly, advanced till it has culminated in this present work.

I wish to press the paramount importance of all students making free use of the unit of weight system, whereby weights of standard metal can be clothed with signs and signs can be stripped from weights.

The writer and many others, first of whom, Dr. Linderman, Mint Master of the United States, N.A., in 1875, and later many well-known economists, have found that this most powerful factor is the key to the science of money. This system consists of attaching a monetary sign for one grain

or one decigram of pure gold or pure silver in the chief money of account of each monetary system. This sign for the British Isles, an an example, is thus obtained. The mint issue weight of pure gold in the sovereign is 113·001605 grains: there are 240 pence in a sovereign: the pence divided by the weight gives the monetary sign for one grain.

$$240 \div 113{\cdot}001605 = 2{\cdot}123863 \text{ pence.—Ans.}$$

This sign, used as a divisor of, say, £48 17*s.* 6½*d.*, gives the weight of pure gold indicated by the sign. Used as a multiplier of weight of gold in grains it yields the monetary sign for the same. Thus, fixed pars between gold standard systems can be reached, and fixed pars between silver standard systems. To ascertain absolute pars between a gold and a silver standard system, this factor in conjunction with the ratio very quickly and correctly determines it. Take for the two countries between which it is desired to know the absolute par of exchange, the British Isles and Mexico. Say the ratio between the metals is 24·694. The mint issue weight of pure silver in the peso is 377·181 grains; 377·181 ÷ 24·694 = 15·28. This 15·28 is the equivalent in grains of gold to 377·181 grains of silver. 15·28 at 2·12386*d.* gives 32·45*d.* as the absolute par of exchange between the British Isles and Mexico on the ratio given. Check this by weights. In a British sovereign there are 113·001605 grains of pure gold. Divide 15·28 grains by 113·001605 = ·1352 of a sovereign or 32·44*d.*

To find the weight of pure gold indicated by 32·44 pence. Divide 32·44 by 2·123863, and the result is 15·28 grains of pure gold.

To find the French monetary sign for a German mark. Multiply 5·53134 grains of pure gold in the mark by 22·31964 centimes, the French sign for one grain of pure gold, and the answer is 1 franc 23·43 centimes.

RATIO BETWEEN GOLD AND SILVER.

This almost daily fluctuating ratio is one of the most important factors in the exchanges of intermediaries, and should be a prominent quotation in all credit and money market

reports. It is easily determined upon the gold price of pure silver in gold standard countries, and upon the silver price of pure gold in silver standard countries.

As an instance, take the gold price of silver in London at 28 pence per 444 grains of pure silver. There are 36 grains of alloy in the troy ounce of bar silver. The cost of these and the manufacture of the coin are neglected in my system. In the British Isles there is no charge for alloy in, and manufacture of, gold coins. The weight of pure gold indicated by 28 pence must be found; then the 444 grains of silver divided by the weight of pure gold gives the ratio. Thus—

28 pence ÷ 2·123863 pence, the sign for 1 grain of pure gold, gives 13·183 grains of pure gold. Then 444 grains of pure silver divided by 13·183 gives the ratio between the metals at 33·68 parts of silver to 1 part of gold.

By the use of the constant 942·9955 pence which will be found attached to British, Table IV., the same result as the last is obtained by dividing it by 28 pence. 942·9955 ÷ 28 = 33·68 parts of silver to 1 part of gold. This constant represents the value in pence of 444 grains of gold, that is a quantity of gold equal to the weight of pure silver in one ounce of bar silver.

THE FOREIGN AND COLONIAL EXCHANGES.

In answer to the question: What are the component parts of the foreign and colonial exchanges? it may be said that at the present time they are signs which denote weights of pure gold and weights of pure silver between two scientific automatic monetary systems or two effective monetary systems, with more or less of weight of metal as one charge or another is added to or deducted from metal pars.

The three other vastly diverse currency systems, viz. silver-cum-counter-charge, basal gold or inconvertible paper based on gold, and basal silver or inconvertible paper based on silver, have other very heavy percentage charges either added to or deducted from the weight of pure metal.

METHOD WITH ALL CURRENCY EXCHANGES.

This is the manner in which the exchange of currency intermediaries is dealt with under my system.

I. The fluctuating amount of currency in the country originating the operation is quoted for the whole chief money of account of the country operated upon. Thus—

The British Isles upon France—9·47 to 9·55 pence for a franc
France upon the British Isles—25·10 to 25·22 francs for a pound
British India upon the British Isles—11 to 22 rupees for a pound
British Isles upon British India—21·8 to 10 pence for a rupee

II. To find the fixed or absolute pars of exchange.

Fixed Metal Pars of Exchange.—These are different monetary signs for the same weight of one metal, either gold or silver. Take gold. The sovereign at mint issue weight is 113·0016 grains of pure gold; the franc at mint issue weight is 4·4803 grains of pure gold.

I. To ascertain the French monetary sign for the British pound, the sum is—

113·0016 ÷ 4·4803 = francs 25,22·15 centimes.—Ans.

II. The British monetary sign for a franc? The sum is—

4·4803 ÷ 113·0016 = ·03964 of £ × 240 = 9·515 pence.—Ans.

There is another method of reaching the same answer.

III. The British monetary sign for one grain of gold is 2·123863 pence. The weight of pure gold in the franc multiplied by this will give the British monetary sign for one franc. The sum is—

4·4803 × 2·123863 = 9·52 pence.—Ans.

Another method of obtaining a closely approximate answer.

IV. The weight of pure gold indicated by one penny is ·4708 of a grain: the franc is 4·4804 grains of pure gold. The sum is—

4·4804 ÷ ·4708 = 9·516 pence.—Ans.

V. Take silver. The Shanghai tael weight has as its equivalent 516·4058 grains of pure silver. The mint issue weight of the Mexican dollar or peso is 377·1809 grains of

pure silver. What is the Mexican monetary sign for one tael? The sum is—

516·4058 ÷ 377·1809 = 1·37c. dollar or peso.—Ans.

VI. The China monetary sign for a dollar? The sum is—

377·1809 ÷ 516·4058 = 730 cash.—Ans.

These fixed pars between the 17 gold systems and between 12 chief silver coins will be found on pages 74-80. These fixed pars in a chain rule sum are worked on mint issue weights of pure metal, gold or silver. The fixed par of exchange between the British Isles and France is 9·515 pence, and the link in the chain would thus appear—

grains of gold 113·0016 *v.* 4·4804 grains of gold

The link in the chain if equivalent monetary signs were worked with would be—

franc 1 = 9·515 pence

The same principles apply to fixed silver pars of exchange.

Absolute Metal Pars of Exchange.—These are based upon the almost daily varying gold price of silver in gold standard countries, and similar variations in the silver price of gold in silver standard countries. The daily ratio between gold and silver is one of the most important items of information that could be given to the commercial and financial world. It can be ascertained from the commercial news furnished now by most daily papers through taking the market quotation for an ounce of silver and dividing the constant 942·9955 by it.

The London price of bar silver to-day, the 21st of September, 1898, is 28 and $\frac{5}{16}$ pence per ounce, and it is desired to know what ratio of silver to 1 of gold is indicated by the quotation. The sum is—

942·9955 ÷ 28·3125 = 33·31 parts of silver to 1 part of gold.—Ans.

An absolute metal par of exchange is indicated by two different monetary signs, one for pure gold, the other for pure silver at the varying gold price of silver and silver price of gold of the day. As, at the ratio of 34·44 parts of silver to 1 part of gold, the absolute par of the day between the British Isles and Mexico is $23\frac{1}{4}$ pence for 1 peso. 3·28 pence

is the British sign for 1 decigram of pure gold. The sum is—

Peso 244·41 decigrams ÷ 34·44 × 3·28 pence = 23·27816 pence.

A constant for use in determining the ratio resulting from a given price is attached to each monetary system in Table III. presented herewith.

Absolute Currency Pars of the Day depend upon (I.) the variable ratio between gold and silver. (II.) The variable increased purchasing power conferred by legislation on a definite weight of silver, such as exists in the British Indian currency exchange intermediary at the present time, the 165 grains of silver in the rupee doing the work of 248 grains of silver. (III.) The variable paper premium on gold. (IV.) The variable paper premium on silver.

To obtain the absolute par between a gold and a silver intermediary, three links are introduced into a chain rule sum. To find the absolute par of exchange between the British Isles and Mexico, the mint issue weight of the pound and the mint issue weight of the peso, together with the ratio of the day between gold and silver, determine it.

State the mode of reaching the absolute par of exchange between the British Isles and Mexico, the ratio being 33·31 parts of silver to 1 part of gold, the links are—

peso 1 = 377·181 grains of silver
grains of silver 33·31 = 1 grain of gold
grains of gold 5·65 = 1 shilling

VII. What is the absolute par of exchange of the day, weight for weight, in the British Isles with Mexico, the ratio of silver to 1 of gold being 33·31? The Mexican peso or dollar at mint issue weight is 377·1809 grains of pure silver; the British shilling is a token for the 20th part of a pound, and therefore does the work of 5·65 grains of gold. The sum is—

? (shillings) = 1 dollar
dollar 1 = 377·1809 grains of silver
ratio of silver to 1 of gold 33·31 = 1 of gold
grains of gold 5·65 = 1 shilling

$$\frac{1 \times 377{\cdot}1809 \times 1 \times 1}{1 \times 33{\cdot}31 \times 5{\cdot}65} = 2{\cdot}004 \text{ shillings.—Ans.}$$

24 and $\frac{3}{64}$th pence is the absolute par between the British Isles and Mexico for the peso at 33·31 parts of silver to 1 part of gold. The Mexican coinage charge is 2 per cent. The equivalent exchange to the cost of the silver with shipping and all charges including the 2 per cent. coinage charge and loss of interest for the time between the purchase of silver in the British Isles and the possession of the peso in Mexico, say 3 and $\frac{1}{2}$ per cent., would bring it up to 24·004 pence + $3\frac{1}{2}$ per cent. = 24·84 pence, or 24 and $\frac{29}{32}$ pence. In 1873 the ratio of silver to gold was not half of what it is now, and in consequence the British price of the peso was 54 pence.

VIII. What is the absolute par of exchange of the day, weight for weight, between a Shanghae tael and a dollar of the United States of North America, at a ratio of 33·31 of silver to 1 of gold, the tael 516·4058 grains of pure silver, and the dollar 23·22 troy grains of pure gold?

? (tael) = 1 U.S.A. gold dollar
dollar 1 = 23·22 grains of pure gold
grain 1 = 33·31 of silver
grains of silver 516·4058 = 1 tael

$$\frac{1 \times \overset{11{\cdot}61}{\cancel{23{\cdot}22}} \times 33{\cdot}31 \times 1}{1 \times 1 \times \underset{208{\cdot}2029}{\cancel{516{\cdot}4058}}} = \text{tael } 1{\cdot}394.\text{—Ans.}$$

PREMIUM AND DISCOUNT ON PARS OF EXCHANGE.

The recognized scientific manner of working the exchanges between two countries in which the standard substance forming the chief money of account does not correspond in quality and weight is by adding the premium to, or deducting the discount from, fixed and absolute pars; the premium or discount to be taken upon the currency of the country in which the exchange transaction is originated. We shall see on page 31 that this is not the world's present custom. It is thus between effective gold standard countries, such as between the British Isles and Australasia, France, and Belgium. He who in London desires to make a remittance to Australia would rather pay a little more for a good bill at sight than the cost of the shipment of sovereigns.

He who in London wishes to receive money from Australia would rather take a little less than the cost of bringing sovereigns from Australia. The first operator pays a premium on par for the bill that he buys. The second operator sells his bill at a discount. These are actual percentage premium and discount operations. All other bill operations partake of the same nature under the terms "Rates of Exchange."

THE CONVERSION OF ONE CURRENCY INTO ANOTHER.

To convert one currency into another, the first factor in the rate of exchange must be the currency of the country operating to find the equivalent in the country operated upon.

Take the exchange between the British Isles and France, and find the equivalent in London for a French franc; weight for weight. The mint issue weight of pure gold in the sovereign is 73·224 decigrams, in the franc 2·903 decigrams.

The sum is—

$$2{\cdot}903 \div 73{\cdot}224 \times 240 = 9{\cdot}516 \text{ pence.—Ans.}$$

To convert £1000 into francs at this exchange.

The sum is—

$$1000 \times 240 \text{ pence} \div 9{\cdot}516 = 25{,}220 \text{ francs } 66 \text{ centimes.—Ans.}$$

To find the equivalent in Paris for a sovereign, weight for weight, the pure gold in the mint issue of one franc being 2·903 decigrams, and in the sovereign 73·224 decigrams; the weight of gold in the sovereign must be divided by the weight of gold in the franc.

The sum is—

$$73{\cdot}224 \div 2{\cdot}903 = 25 \text{ francs } 22{\cdot}3 \text{ centimes.—Ans.}$$

To convert 100,000 francs into sovereigns.

The sum is—

$$100{,}000 \div 25{\cdot}223 = £3964{\cdot}59\text{.—Ans.}$$

It will be noticed in the above sums that the decimal places are too few to arrive at absolutely correct answers.

In presenting foreign currency for exchange in a country, the first factor in the rate of exchange should invariably be the currency of the country in which the exchange is to be made.

Assume that fifty sovereigns or credit instruments of equal value are presented for exchange in France, and the money-changer offers at the rate of 10 pence for a franc.

The sum would be—

50×240 pence $\div 10 = 1200$ francs, or 24 francs for one sovereign.

The par rate between France and the British Isles is 25·22 francs, and is, therefore, 5 per cent. more than 24 francs for one sovereign. This percentage charge is out of all proportion to what it ought to be between automatic gold monetary systems whatever distance separates the two. Twenty-four francs for a British pound would indicate the possession of a gold-cum-counter-charge currency system in France.

By referring to the *Times* quotation of Exchange on London at dates, the rates in 17 countries are given ; 8 of these rates are scientific, being variable rates in the currency of the country for the pound sterling, and 9 are unscientific, being the whole money of account of each for variable pence in London. There are only two countries between which the scientific rule is practised in both, viz. the British Isles and Russia. In the British Isles it is fluctuating pence for a rouble, and in Russia it is fluctuating roubles for a pound. Between the 8 countries first alluded to, the rate in London is literally a pound for the variable currency of these countries. If the scientific principle was followed throughout the world, the uninitiated would not be so puzzled as they are at present over the exchanges. It is clearly seen that were this principle followed, a rise in the rate of exchange in the country thus acting would indicate a fall in the country with which the exchange is made, and *vice versâ* in the case of a fall in the rate. We can see this by looking at the exchange with Russia. The exchange in Russia is, say, 9 roubles 46 copecks for a pound, and it is 25·37 pence per rouble in London, 25·37 pence per rouble is the same rate as 9 roubles 46 copecks per pound.

The sum is—

$240 \div 25{\cdot}37 = 9$ roubles 46 copecks.—Ans.

Take the price of the rouble at 26 pence, which is a rise of 2·44 per cent. on 25·37 pence. Ascertain the roubles thus given for a pound.

The sum is—

$$240 \div 26 = 9 \text{ roubles } 23 \text{ copecks.—Ans.}$$

We see that a higher rate in London gives an equivalent lower rate in Russia, and that a higher rate in Russia gives an equivalent lower rate in London.

Operators in the exchange for profit find it more convenient to follow the unscientific method.

N.B.—Travellers should be careful to get their quotations for foreign currency in the variable factor of the currency of the country they are in, and to put themselves into the position of acquainting the money-changer with the par worth of the currency they offer for exchange. Never allow the use of the first factor in the quotation as a divisor. It should always be a multiplier in the currency of the country the stranger is in. As an example. A sailor having to exchange a shilling in France should get the quotation in francs and centimes. The French par with one shilling is f. 1·26. The British par with one franc is 9 and ½ pence. Ten pence sounds a good rate, but as a divisor of 12 pence it only gives f. 1·20, nearly 4·8 per cent. less than f. 1·26.

One of the first questions which a traveller and a trader would ask about a country is, What is its currency? For if I am going to travel or do business in another country I shall have to change my money for that of the country I am about to visit or trade with. What time must elapse before the intending traveller or trader, by resorting to some place provided by the Government of his country, could make himself acquainted by sight and touch with the metal money, and tokens of it, that he would meet with in his travel or trade?

This pamphlet comprises all the guidance necessary for the comprehension and working of the exchanges by sailors, soldiers, and travellers. For large transactions more decimal places would be requisite.

PROBLEMS TO BE SOLVED BY THE USE OF THE UNIT OF WEIGHT, AND THE WORLD'S MONETARY SIGNS FOR ITS CHIEF MONEYS OF ACCOUNT. EFFECTIVE GOLD.

1. What weight of pure gold in grains is indicated by £4 7*s.* 5*d.*?

2. What weight of pure gold in grams is indicated by £20 17*s.* 8*d.*? A decigram is the tenth of a gram.

3. Put the United States monetary sign upon the weight of gold indicated by £30 8*s.* 10*d.*

4. What is the Russian monetary sign for 8,756 decigrams of gold?

Exchange the French sign 25 centimes into signs indicating the same weight of pure gold in the following countries:—

5. In Egypt. 6. In British Isles. 7. In Turkey. 8. In Portugal. 9. In Uruguay. 10. In the United States. 11. In the Argentine Republic. 12. In Brazil. 13. In Russia. 14. In Japan. 15. In Holland. 16. In Chili. 17. In Denmark. 18. In Germany. 19. In Austria-Hungary.

N.B.—Use decigram to the fourth decimal. Refer to Table III. Show the weights in all answers.

The answers to these sums show what the rates of exchange would be for bills at sight or cheques if each system was a scientific automatic one, but some of them consist of inconvertible paper based on gold, and would present from slight to heavy percentage differences.

BASAL GOLD OR INCONVERTIBLE PAPER BASED ON GOLD.

Gold is at 600 per cent. premium in the Republic of Paraguay. The Paraguay gold money is the same as that of the Argentine Republic. It is a peso of 14·516 decigrams of pure gold on issue from the mint. What is the British par value of the paper peso?

The sum is—

pence ? = 1 paper peso
gold peso 1 = 14·516 decigrams of gold
decigram of gold ·305 = 1 penny
600 per cent. premium 700 = 100.

$$\frac{1 \times 14{\cdot}516 \times 1 \times \frac{1}{7}\not{0}\not{0}}{1 \times {\cdot}305 \times 7\not{0}\not{0}} = 6{\cdot}8 \text{ pence: Ans.}$$

Prove this: Under fixed gold pars No. 2, against Argentine peso 47·578 pence is found at page 75. 600 per cent. premium is equal to 85·71 per cent. discount.

$$47{\cdot}578 - 85{\cdot}71\ \%\ \text{dis.} = 6{\cdot}8 \text{ pence: Ans.}$$

To discover the paper pésos to the pound—

$$240 \text{ pence} \div 6{\cdot}8 \text{ pence} = 35{\cdot}29 \text{ pesos: Ans.}$$

Take the *Times* quotations, or those of any other daily paper, and these differences are immediately perceived. The weight of pure gold for the British pound in the chief moneys of account of Paris, Brussels, Italy, and Madrid, is the same, but the quotations vary greatly. Paris 25 francs 19 centimes to Madrid 32 pesetas 70 centimos, a difference of about 30 per cent., showing that gold is at 30 per cent. premium in the currency of the country which consist of inconvertible paper based on gold. This premium in paper upon gold denotes about 23 per cent. discount on gold for the inconvertible paper currency.

The rate in Italy is 27 lire 14 centesimi. This is 7 per cent. more than the French rate, and indicates that the currency of Italy consists of inconvertible paper based on gold.

At Madrid the quotation is 32 pesetas 70 centesimos. The par rate is 25·22 pesetas. This shows a premium of 29·66 per cent., and indicates that the currency is basal gold.

At Lisbon the sight quotation is 36·25 pence on London. The gold par is 53·278 pence. This compared with 36·25 pence shows that gold is at a premium of 47 per cent. in the inconvertible paper based on gold currency of Portugal. This premium is equal to 32 per cent. discount on gold for the inconvertible paper currency at present in use.

At Rio de Janeiro the quotation is 7·5 pence. The British par value of the Brazilian milrei is 27 pence. This compared with 7 and ½ pence shows that gold is at a premium of 274 per

cent. in inconvertible paper based on gold. This premium is equivalent to 72 per cent. discount on gold for the present currency of the country.

Under Buenos Ayres 22·78 pence, and gold premium 109 per cent. are given. The British equivalent to Argentine gold is expressed by 47·578 pence. This, compared with 22·78 pence, shows that gold is at 109 per cent. premium, which is equivalent to 52 per cent. discount on gold for the present currency of the Argentine Republic.

Against Valparaiso 90 days sight is 10·5 pence. Assume that the demand rate would be 11·5 pence. The British par with the Chilian gold condor is 18 pence. This, compared with 11·5 pence, shows that gold is at a premium of 56 per cent., or equivalent to a discount on gold of 36 per cent. for the present currency of the country.

For practice in the use of the unit of weight system all the above sums should be worked in weights of pure gold.

20. Prove that the British monetary sign for 2·903 decigrams of pure gold, which is the mint issue weight of one franc, is 9½ pence.

21. Demonstrate the weight of pure gold, in grains, indicated by 9·515 pence.

Notice that the weight of pure gold indicated by a franc or 100 centimes is also indicated by the following signs:— Bulgaria, leva or 100 stotinki; Finland, mark or 100 pennia; Greece, drachma or 100 lepta; Italy, lira or 100 centesimi; Roumania, leu or 100 bani; Servia, dinar or 100 paras; Spain, peseta or 100 centesimos; Belgium and Switzerland, franc or 100 centimes. The dollar, peso, sol, sucre of some of the Central and South American republics are generally said to be equivalent to four shillings. Where the weights of these are five times that of the franc, as under the Argentine Republic, Paraguay, and some others, that is, 22·4018 grains, or 14·5161 decigrams of pure gold at 15½ parts of silver to 1 of gold, or five times the weight of the silver franc, that is, as under Columbia, 347·2278 grains, or 225·0000 decigrams of pure silver, it is not correctly stated at four shillings.

22. Prove that the gold chief money of account of these republics is only worth five times the franc, or 47·575 pence, and that the silver coin at the ratio of 15½ parts of silver to 1 part of gold is only equal to 47·575 pence.

EFFECTIVE SILVER.

23. What weight in decigrams of pure silver does 76 Mexican pesos indicate?

24. Put the Shanghai tael monetary sign upon 76,352 decigrams of silver.

25. How many decigrams of pure silver are indicated by 8796 Columbian sols?

26. Put the Mexican monetary sign upon the weight of silver indicated by 876 ticals.

27. Exchange the Mexican sign 13 centavos into signs indicating the same weight of pure silver in the following countries: China, Shanghai, Java, Philippines, Columbia, Bolivia, Siam, Persia.

The weight of pure silver on issue from the mints in the silver standard chief moneys of America are :—

Mexican peso	244·4092 decigrams	..	377·1810 grains.
Columbian sol	225·000 „	..	347·2278 „
Bolivian boliviano ..	202·500 „	..	312·5050 „

The greatest weight of these is 20·7 per cent. more than the least. The weight of the Columbian sol is still the legal tender token in many of the republics which have declared for a gold standard. The currency among them, with two or three exceptions, is inconvertible paper. There are not now in the whole of the Americas more than two or three republics that have, or profess to aim at having, a silver standard.

The following are the mint issue weights of pure silver in coins of the dollar class circulating in the East :—

Trade dollar	244·9400 decigrams	..	378·0000 grains.
Mexican peso	244·4091 „	..	377·1810 „
Japan yen .. .. / British dollar	242·6076 „	..	374·4000 „
Java dollar, or 2½ guilders	236·2500 „	..	364·5925 „
Philippine dollar ..	233·6400 „	..	360·5628 „

The British value to-day of the heaviest of the above at 34 parts of silver to 1 part of gold is 23·62 pence, and the lightest 22·38 pence. The difference is 5·5 per cent. on the lightest.

The mint issue weight of pure silver in the U.S. dollar is 240·567 decigrams, or 371·2514 grains. In the British Indian rupee it is 106·9205 decigrams, or 165 grains.

Among the occasional quotations of the "Exchange on London at dates" in the *Times*, of the sixteen from different countries two are from effective silver standard countries and one from a silver-cum-counter-charge country.

Shanghai T.T. 2*s*. 8¾*d*.—The meaning of this is that for one Shanghai tael a telegraph transfer for 32·75 pence payable in London will be granted in Shanghai.

28. Demonstrate the weight of silver indicated for the weight of gold in decigrams with the ratio between the metals.

Hongkong sight, 1*s*. 11¼*d*.—The meaning of this is that for a Mexican dollar or peso a bill at sight for 23·25 pence on London can be obtained in Hongkong.

29. Demonstrate the weight of silver indicated for the weight of gold in decigrams, also the ratio between the metals.

SILVER-CUM-COUNTER-CHARGE CURRENCY.

Bombay T.T. 1*s*. 4⅛*d*.—The meaning of this is that for one rupee a telegraph transfer for 16·125 pence payable in London will be granted in Bombay for one rupee there.

30. Demonstrate the weight of silver indicated for the weight of gold in decigrams, also the ratio between the metals. To answer this question the silver rupee in Table IV. must be used.

31. Demonstrate, by the use of the gold rupee aimed at, the weight of gold in Bombay for the weight of gold in London indicated by the quotation. (See Table III.)

32. Demonstrate the percentage amount by which India's exports are handicapped at the present time by effective silver standard countries through the use of this silver-cum-counter-charge currency, or the effective gold currency, should the same be procured and maintained.

BASAL SILVER, OR INCONVERTIBLE PAPER BASED ON SILVER.

In the United States of Columbia exchange is quoted at 100 per cent. It may be on gold, but I do not know that it is the case. Assume that this is the premium on silver. What is the weight of gold in decigrams, and the British monetary sign for it, in exchange for a Columbian peso, at 34 parts of silver to 1 part of gold?

Example by the chain rule.—The factors to be worked are: the mint issue weight of the sol, Table I., 225 decigrams; the ratio between the metals 34; the British monetary sign for a decigram, 3·28 pence; and the percentage premium in inconvertible paper for silver 100 per cent.

The sum is—

pence = 225 decigrams of silver
parts of silver 34 = 1 part of gold
decigram of gold 1 = 3·28 pence
100 per cent. pm. 200 = 100.

$$\frac{225 \times 1 \times \overset{1{\cdot}64}{\cancel{3{\cdot}28}} \times \cancel{100}}{\underset{17}{\cancel{34}} \times \cancel{1} \times \underset{2}{\cancel{200}}} = 10{\cdot}85 \text{ pence: Ans.}$$

Prove this. One hundred per cent. premium is equivalent to 50 per cent. discount. Find the equivalent in gold to 225 decigrams of silver at 34 of gold to 1 of silver; deduct 50 per cent. from the result and convert the weight into pence.

The sum is—

$$225 \div 34 - 50 \text{ per cent.} \times 3{\cdot}28 = 10{\cdot}85 \text{ pence: Ans.}$$

This is an example which will serve also for inconvertible paper based on gold, one factor, the ratio, being omitted.

POSTAGE STAMPS.

It is a simple and interesting investigation to determine which of the five diverse intermediaries, viz. automatic gold, automatic silver, silver-cum-counter-charge, inconvertible paper based on gold, inconvertible paper based on silver, is in use on the seaboard of each international trading community. The means is by the study of postage stamps.

There is an international postal arrangement whereby for the conveyance and delivery of a letter of the weight of half an ounce avoirdupois, or its equivalent in other countries' weights, between certain countries, a charge of 25 centimes is made, or the equivalent to 25 centimes in the currencies of other countries.

The Governments of all countries have appointed a definite weight of pure gold or of pure silver as their chief money of account and equivalent in exchange. If each country of the world possessed an effective gold standard, the charge for the half-ounce letter would be the same weight of gold, but under a different monetary sign. The same thing would happen if each country had an effective silver standard. With diverse monetary signs it is impossible in working to make the gold or silver weight-charge exactly the same for each country. By the abolition of signs and the use of weight only this could be done. But at present the world's prices are effective gold here, effective silver there, silver with a counter-charge in a third group of places, inconvertible paper based on gold in a fourth group of places, and inconvertible paper based on silver in a fifth group of places.

The Universal Postal Union embraces more than 100 countries and islands. The postages equivalent to 25 centimes are represented in twenty-seven different rates. There are fifty-four quotations attached to the 100 countries of the Union. The cents of a dollar and the centavos of a peso embrace eighteen quotations.

Columns III. in Tables I. and II. are thus constructed. The weight of pure gold indicated by 25 centimes must be found. The mint issue weight of pure gold in the franc being 2·90322 decigrams and 25 centimes being the monetary sign for the quarter of a franc, the weight sought after is ·7258 of a decigram.

$$2{\cdot}90322 \div 4 = {\cdot}7258 \text{ of a decigram.}$$

The multiplication of this weight by the monetary sign for one decigram of metal against each monetary system in Col. V. of Table III. should give the figures in Col. III. of Tables I. and II.

TABLE I.

Col I. Name of country and standard; g. for gold, s. for silver, m. possessor of a mint, i.p. inconvertible paper. II. Rate of Universal Postal Union. III. The equivalent to 25 centimes at $15\frac{1}{2}$ parts of silver to 1 part of gold. IV. The gold equivalent to the silver at 34 parts of silver to 1 part of gold or $54\frac{2}{3}$ per cent. discount upon gold.

GOLD.

Col. I.	Col. II.	Col. III.	Col. IV.
I. Egyptian, g.	1 piastre	·98 p	·44 p
II. British, g. m.	2·5 pence	2·38 p	1·09 p
III. Turkish, g. m.	40 paras	43·89 p	20·01 p
IV. Portuguese, i.p.g. m.	50 reis	44·64 r	20·36 r
V. Uruguayan, i.p.g.	5 centavos	4·66 c	2·13 c
VI. United States, g. m.	5 cents	4·82 c	2·20 c
VII. Argentine, i.p.g. m.	8 centavos	5·00 c	2·28 c
VIII. Brazilian, i.p.g. m.	200 reis	88·32 r	40·27 r
IX. Russian (new), g. m.	10 kopecks	9·38 k	4·28 k
„ (old) „			
X. Japanese (new), g. m.	10 sens	9·67 s	4·41 s
„ (old) „			
XI. Dutch, g. m.	12·5 cents	12·00 c	5·47 c
XII. Chilian (new), i.p.g. m.			
„ (old) „	5 centavos	5·28 c	2·41 c
XIII. British Indian (new)	2·5 annas	2·38 a	1·09 a
XIV. Scandinavian, g. m.	20 ores	18·00 o	8·21 o
XV. German, g. m.	20 pfennigs	20·25 pf	9·24 pf
XVI. Austria-Hungarian (new), g. m.			
„ (old) „	10 krentzers	10·00 k	4·56 k
XVII. French, g. m.	25 centimes	25·00 c	11·40 c

TABLE II.

Col. I. Name of country. II. Rate of Universal Postal Union. III. The equivalent to 25 centimes at $15\frac{1}{2}$ parts of silver to 1 part of gold. IV. The silver equivalent to gold at $119\frac{3}{10}$ per cent. premium.

SILVER.

Col. I.	Col. II.	Col. III.	Col. IV.
XVIII. Shanghai, s. m.		33·64 c	73·76 c
XIX. Mexico, s. m.	5 centavos	4·61 c	10·09 c
XX. Japan	5 sens	4·63 s	10·14 s
XXI. Java, s.	12·5 cents	4·72 c	10·35 c
XXII. Philippines, s. m.	5 centavos	4·84 c	10·61 c
XXIII. Columbia, i.p.s.	5 centavos	4·95 c	10·85 c
XXIV. Bolivia, s. m.	10 centavos	5·51 c	12·08 c
XXV. Russia	10 kopecks	6·19 k	13·57 k
XXVI. Siam, s. m.	10 atts	4·95 a	10·85 a
XXVII. Austria-Hungary	10 kreutzers	10·12 k	22·19 k
XXVIII. British India, silver rupee	2·5 annas	20·25 pies	44·40 pies
XXIX. Persia, s. m.	12 shahis	5·40 s	11·84 s
XXX. Corea, s. m.	25 poons or cash	23·73 p	52·04 p

An att is the 64th part of a tical. In the Kingdom of Corea the chief coin coined there is a large silver coin of 5 riangs, or 500 cash. The mint issue weight of pure silver is 374·4 grains; so it is of the same value as the Japanese silver yen, which is divided into 100 sen; therefore 5 Corean cash make 1 sen and 20 sens make 1 riang. A cash and a poon appear to denote the same weight of silver. Thirty-two Portuguese reis equal 1 tanga, a coin used in the East; 2 tangas, or 64 reis, indicate 1·0406 decigram of pure gold. Accounts in Newfoundland are kept in the gold dollar of the country, which is 15·25497 decigrams of pure gold on issue from the mint. One cent and a halfpenny indicate the same weight of pure gold. This dollar is no longer coined.

The currency of each country should be known. In the tables presented herewith, attached to each country there are letters to denote the currency, &c. Currency: g. Effective gold; s. effective silver; s.c. silver-cum-counter-charge; i.p.g. inconvertible paper on gold; i.p.s. inconvertible paper on silver. The possession of a mint will be indicated by m.

THE HALF-OUNCE LETTER RATES IN THE UNIVERSAL POSTAL UNION.

Tables I. and II. present 31 different rates in the Universal Postal Union for the carriage of half an ounce letter over-sea. Col. III. The monetary sign for the weight of pure gold indicated by 25 French centimes at 15 and ½ parts of silver to 1 part of gold. Col. IV. under gold. The monetary sign for the weight of gold equivalent to 1 part of gold to 34 parts of silver. And under silver, the monetary signs for the weight of silver equivalent to gold at 34 parts of silver to 1 part of gold. The sums in these two tables would by practice appear very simple to ordinary arithmeticians. They should be worked by the decigram. (See Table No. III.)

EXERCISES ON TABLE I.

Of the 17 gold rates in Table I., 11 rates are for effective gold currencies, and 6 for inconvertible paper based on gold currencies. By comparing the rates in Col. III. with those in Col. II., it will be seen that not one of them conforms with the 25 centime rate.

The following are sums upon six basal gold rates:—

33. Here is a Portuguese postage stamp for 65 reis. What paper premium on gold does this sum represent?

34. Here is an Uruguay stamp of 10 centesimos. What weight of gold and paper premium on gold does this represent?

35. Here is an Argentine postage stamp for 10 centavos. What weight of gold and paper premium on gold does this represent?

36. Here is a Peruvian postage stamp for, say, 12 centavos.

What weight of gold and paper premium on gold does this represent?

37. Here is a Brazilian stamp for 200 reis. What weight of gold and paper premium on gold does this represent?

38. Here is a Chilian stamp for 10 centavos. What weight of gold and paper premium on gold does this represent?

The answers to these questions compared with the Postal Union rates will determine the nature of the currency.

EXERCISES ON TABLE II.

34 PARTS OF SILVER TO 1 PART OF GOLD.

39. Here is a Mexican stamp for 10 centavos. What weight of pure silver does it indicate? What is the percentage increase in weight over that indicated by 4·603 centavos? What is the gold equivalent?

40. Here is a Bolivian stamp for 10 centesimos. What weight of pure silver does it indicate? What is the percentage increase in weight over that indicated by 5·55 centesimos? What is the gold equivalent?

41. Here is a Siamese stamp for 10 atts. What weight of pure silver does it indicate? What is the percentage increase over the weight indicated by 4·1 atts? What is the gold equivalent?

42. Here is a Persian stamp for 12 shahis. What weight does it indicate? What is the percentage increase of weight over that indicated by 5·43 shahis? What is the gold equivalent?

43. Here is a Corean stamp for 25 poons. What weight does this indicate? What is the percentage increase over that indicated by 24·73 poons? What is the gold equivalent?

These rates are effective silver. The variation results from the change of rates from 15½ to 1 to 34 to 1 between silver and gold.

Here is a British India stamp for 2½ annas. At present there is no standard in British India, and there cannot be an

effective gold standard until legal tender State notes are converted into gold at the will of the holder of them without question, delay, or expense. If the British Indian Government possessed and exchanged gold rupees for their notes, fifteen of these rupees would indicate the weight of pure gold in the British pound. 2 and ½ annas would indicate the weight of gold which 2 and ½ pence does. At present, since State notes are convertible into silver rupees only, of 165 grains of pure silver each, the British value of a rupee at 34 to 1 is 10·31 pence. The fictitious rupee now commands 16 pence. This shows that the present British Indian intermediary is a silver-cum-counter-charge one, having a fictitious value of 55 per cent. more than its world-wide market worth.

Any experienced teacher of youth could interest an appreciative mind with a vast diversity of questions having as their basis the diverse currencies of the world at present in use.

In 1887 I was privileged to address a meeting under the auspices of the London Institute of Bankers at the London Institution upon the metallic bases of the colonial and foreign exchanges and the simplification of exchange. The chairman of the meeting was at that time a well-known successful manager of an Eastern Exchange Bank. In the course of his remarks at the close of the lecture he said, "As regards the question of the knowledge of the young men of this country with respect to exchanges, I think that those among us who have been accustomed to visit foreign lands, and have conversed with merchants on the Continent, must acknowledge that the business men of France and Germany are far better trained in this special branch than we are. I would impress upon all those present this evening the great advantage of being able to calculate by the chain rule; a man accustomed to that branch of arithmetical calculation can quickly work out intricate problems, not only in exchanges, but also where the sale and purchase of produce is concerned."

Some years ago now it was confidently asserted that within ten years of the commencement of the teaching of the subject in the simple manner it can be taught in the schools of the world, the utmost astonishment would be expressed at the

ignorance in which the human mind is now sunk upon the subject of money and the mechanism of the interchanges of things between man and man, and community and community.

It is with the view to open out truth upon these most important subjects, more than has been done in my "Universal Cambist," that this pamphlet has been written. It appeared in the same year, 1898, as Messrs. C. Pendlebury and W. S. Beard produced their book upon Commercial Arithmetic. Eighteen pages of this book are given to examples and questions upon monetary systems and exchange. On page 127 will be found—

"146. The following is a more complicated example of a kind which is often met with in business transactions.

Example. Express 15 francs per kilogramme in pence per lb., assuming that francs 25·1 = £1, and 1 kilog. = 2·2 lb.—

$$\begin{aligned}
\text{The cost of 1 kilog.} &= 15 \text{ francs} \\
\therefore\ 2{\cdot}2 \text{ lb.} &= 15 \text{ francs} \\
\therefore\ 2{\cdot}2 \text{ lb.} &= \frac{15 \times 240}{25{\cdot}1} \text{ pence} \\
\therefore\ \quad 1 \text{ lb.} &= \frac{15 \times 240}{25{\cdot}1 \times 2{\cdot}2} \text{ pence} \\
&= \frac{1{,}800}{27{\cdot}61} \text{ pence} \\
&= 65 \text{ pence nearly} \\
&= 5s.\ 5d."
\end{aligned}$$

By the chain rule. The statement and sum are—

$$\begin{aligned}
\text{? (pence)} &= 1 \text{ lb.} \\
\text{lb. } 2{\cdot}2 &= 1 \text{ kilog.} \\
\text{kilog. } 1 &= 15 \text{ francs} \\
\text{francs } 25{\cdot}1 &= 240 \text{ pence}
\end{aligned}$$

$$\frac{1 \times 1 \times \overset{3}{\cancel{15}} \times \overset{120}{\cancel{240}}}{\underset{1{\cdot}1}{\cancel{2{\cdot}2}} \times 1 \times \underset{5{\cdot}02}{\cancel{25{\cdot}1}}} = 65{\cdot}1938 \text{ pence being } {\cdot}0063 \text{ more than } 65\tfrac{3}{16} \text{ pence.—[Ans.}$$

On page 206 there is another example—

"Example i. If the exchange between London and Amsterdam be 36 shillings Flemish per £ and between Paris and Amsterdam 2 fr. per 3*s*. Flemish, how much must be remitted to Paris by way of Amsterdam to pay a debt of 20,000 fr.? Find also the rate of exchange between London and Paris.

We have—

$$\begin{aligned} 1 \text{ franc} &= \tfrac{3}{2}s. \text{ Flemish} \\ 1s. \text{ Flemish} &= \tfrac{1}{36} \pounds \text{ sterling} \\ \therefore 20{,}000 \text{ francs} &= 20{,}000 \times \tfrac{3}{2}s. \text{ Flemish} \\ &= 20{,}000 \times \tfrac{3}{2} \times \tfrac{1}{36} \pounds \\ &= \pounds\tfrac{2500}{3} \\ &= \pounds 833\ 6s.\ 8d. \\ \therefore \text{ sums sent to Amsterdam} &= \pounds 833\ 6s.\ 8d. \end{aligned}$$

Again—

$$\begin{aligned} \pounds 1 \text{ sterling} &= 36 \text{ Flemish} \\ &= 36 \times \tfrac{2}{3} \text{ francs} \\ &= 24 \text{ francs} \end{aligned}$$

$\therefore$ rate of exchange between London and Paris is given by £1 sterling = 24 francs."

By the chain rule. The statements and sums are—

(1) ? (pounds) = 20,000 francs
francs 2 = 3 shillings
shillings 36 = £1

$$\frac{10{,}000 \quad 1}{\cancel{2}\cancel{0}\cancel{,}\cancel{0}\cancel{0}\cancel{0} \times \cancel{3} \times 1} = \pounds 833{\cdot}333 \text{ or } \pounds 833\ 6s.\ 8d.\text{—Ans.}$$
$$\frac{}{\cancel{2} \times \cancel{36}}$$
$$1 \quad 12$$

(2) ? (francs) = £1
£1 = 36 shillings
shillings 3 = 2 francs

$$\frac{12}{1 \times \cancel{36} \times 2} = 24 \text{ francs.—Ans.}$$
$$\frac{}{1 \times \cancel{3}}$$
$$1$$

I observe with great satisfaction that among weights, &c., at the beginning of the book a page is given to the mint issue weights of pure metal in grains for fourteen chief gold standard moneys of account, and for eight chief silver coins. It would not be too much for children to learn these to the second decimal point. I do hope that the chain rule will be the vehicle for instruction upon money for the traveller, the merchant, and the financier.

The bases of my "Universal Cambist" are presented in the accompanying 19 tables. I believe the simplest and clearest method of working all problems connected with money upon my system, is by the chain rule. If this is generally acquiesced in, this little pamphlet presents a progression upon my previous teaching which I earnestly hope may hasten the time when all youths leaving the school for the world will have imbibed all

the instruction useful to them which my writings are intended to impart.

Table III. gives the mint issue weights in decigrams of pure gold in 17 chief gold moneys of account, and the weights of gold indicated by portions of each money of account: 17 monetary signs for 1 decigram of pure gold, and 17 constants attached by which to determine the daily ratio between gold and silver; and the same for the 13 silver monetary systems.

Table IV. gives the mint issue weights in grains of pure gold in 17 chief gold moneys of account, and the weights of gold indicated by portions of each money of account: 17 monetary signs for 1 grain of pure gold, and 17 constants attached by which to determine the daily ratio between gold and silver; and the same for the 13 silver monetary systems.

TABLE V.

Fixed Gold Pars.

Col. I. Name of country and chief money of account. Col. II. Each country's monetary sign for the weight of pure gold in the sovereign at mint issue weight. Col. III. British monetary sign for each chief gold money of account.

Col. I.	Col. II.	Col. III.
I. Egypt, pound ..	98·45 piastres	243·773 pence = £1 0*s.* 3$\frac{3}{4}$*d.*
II. Turkey „ ..	112·44 „	216·804 „ = 18*s.* 0$\frac{3}{16}$*d.*
III. Portugal, milrei ..	4·57 milreis	53·278 „
IV. Uruguay, peso ..	4·78 pesos	51·005 „
V. U.S.A., dollar ..	4·866 dollars	49·315 „
VI. Argentine, peso ..	5·123 pesos	47·578 „
VII. Brazil, milrei ..	8·91 milreis	26·935 „
VIII. Russia, rouble ..	9·46 roubles	25·373 „
IX. Japan, yen ..	9·76 yens	24·582 „
X. Holland, guilder..	12·11 guilders	19·823 „
XI. Chili, condor ..	13·33 condors	17·997 „
XII. Brit. India, rupee	15· rupees	16· „
XIII. Scandinavia,crown	18·16 crowns	13·216 „
XIV. Germany, mark ..	20·43 marks	11·747 „
XV. Austria, crown ..	24·02 crowns	9·992 „
XVI. France, franc ..	25·22 francs	9·515 „

In presenting fixed silver pars of exchange as they existed before 1873, it is possible that in more than one instance they may become operative in the future.

TABLE VI.

FIXED SILVER PARS.

Col. I. Name of country and chief money of account. Col. II. Each country's monetary sign for the weight of pure silver in the British Indian rupee at mint issue weight. Col. III. British Indian monetary sign for each chief silver money of account.

Col. I.	Col. II.	Col. III.
I. China, tael	319·5 cash	50·075 annas.
II. Mexico, dollar or peso ..	43·74 centavos	36·575 „
III. Japan, yen	44·07 sens	36·305 „
IV. Java, rix dollar	45·25 cents	35·353 „
V. Philippines, dollar	45·76 „	34·963 „
VI. Columbia, U.S., sol	47·52 centesimos	33·670 „
VII. Bolivia, boliviano	52·80 „	30·303 „
VIII. Russia, rouble	59·41 copecks	26·930 „
IX. Siam, tical	23·32 phai-nungs	21·945 „
X. Austria, florin	96·22 kreutzers	16·627 „
XI. Persia, kran	2·58 krans	6·190 „

TABLE VII.

GOLD FOR SILVER.

Col. I. Name of silver system. Col. II. Constant attached. Col. III. British par price of each silver money of account at a ratio of 33·31 parts of silver to 1 part of gold.

Col. I.	Col. II.	Col. III.
I. China	1096·773	32·92*d.*
II. Mexico	801·081	24·05*d.*
III. Japan	795·172	23·87*d.*
IV. Java	774·338	23·24*d.*
V. Philippines	765·782	22·99*d.*
VI. Columbia, U.S.	737·465	22·14*d.*
VII. Bolivia	663·717	19·93*d.*
VIII. Russia	589·843	17·70*d.*
IX. Siam	480·648	14·43*d.*
X. Austria	364·181	10·96*d.*
XI. British India	350·437	10·52*d.*
XII. Persia	135·791	4·07*d.*

As an instance of absolute metal pars, silver for gold, take the British Indian silver rupee price of each of the world's sixteen chief gold moneys of account at the ratio of 33·31 of silver to 1 part of gold.

TABLE VIII.

SILVER FOR GOLD.

Col. I. Name of gold system. Col. II. Constant attached in decimals of a rupee. Col. III. Price in rupees or annas obtained by multiplying the constant by the ratio, which is taken at 33·31.

Col. I.	Col. II.	Col. III.
I. Egypt	·69563	23·17 rupees.
II. Britain	·68458	22·81 „
III. Turkey	·61866	20·61 „
IV. Portugal	·15205	5·06 „
V. Uruguay	·145546	3·85 „
VI. U.S.A.	·140727	4·68 „
VII. Argentina	·135768	4·52 „
VIII. Brazil	·076861	2 56 „
IX. Russia	·072403	2·41 „
X. Japan	·071471	2·38 „
XI. Holland	·056566	1·88 „
XII. Chili	·051364	1·71 „
XIII. Scandinavia	·037713	1·26 „
XIV. Germany	·033523	1·10 „
XV. Austria	·028515	15·19 annas.
XVI. France	·027154	14·47 „

The chief factor in each of the world's seven present monetary and currency intermediaries is weight; a weight of gold or a weight of silver in each of twenty-five chief moneys of account on issue of the world's respective chief current coins from the mints; also the weight of pure metal indicated by tokens composing each chief money of account, as the penny the 240th of a pound, 1 centime the 100th of a franc. Table III. presents these weights in decigrams; Table IV. in grains. Besides these weights, each table presents a most valuable and important factor in the monetary sign in each system for 1 decigram or 1 grain of pure metal. The third most necessary and potent factor is the constant attached to each system in Col. VI. of Table III., by the use of which the daily fluctuating ratio between gold and silver can be easily determined.

The monetary sign for 1 decigram or 1 grain of pure metal is of high value in use in two directions: as a divisor and as a multiplier. As a divisor it determines the weight indicated by a monetary sign. As a multiplier it confers a monetary sign upon a given weight.

THE PRESENT MANNER OF QUOTING AND WORKING THE WORLD'S FOREIGN AND COLONIAL EXCHANGES OF INTERMEDIARIES.

In the *Times* of October 18th the following appears :—

Exchange on London at date October 14th, 1898.

Paris cheques	25 f. 32 c.
Brussels „	25 f. 35½ c.
Berlin sight	20 m. 45 pf.
Vienna „	12 fl. 04
Amsterdam „	12 fl. 12
Italy „	27 lire 49
Madrid „	38 ps. 10
Lisbon „	36½*d.* nom.
St. Petersburg, 3 mos. ..	93 r. 75
Bombay, T. T.	1*s.* 3 15/16*d.*
Calcutta „	1*s.* 3 15/16*d.*
Hong Kong, 4 mos.	1*s.* 11*d.*
Shanghai, T. T...	2*s.* 7⅞*d.*
Yokohama, 4 mos.	2*s.* 0½*d.*
Rio de Janeiro	8 9/16*d.*
Valparaiso, 90 days	13½*d.*
Buenos Ayres paper dol. ..	18·97*d.*
„ gold pm. ..	151 p. c.

The above are seventeen quotations of exchange from nine European countries, three South American countries, and five from four Eastern countries on London. The quotations for eight European countries are in the currency of each of those countries for the British pound; the remaining one is in pence for a milrei. All the rest are in pence for the standard unit currency of each country. The three South American ones are inconvertible paper based on gold for pence. The two Indian ones, silver-cum-counter charge—i.e. fictitious rupee—for pence. The three remaining Eastern ones are automatic silver for pence. Eight of the nine European quotations are scientific; all the rest are not so. These eight are scientific because it is a variable rate in the country originating the transaction for a fixed rate in the country operated upon. The British rate on each of these countries should be variable pence for each country's chief money of account. Each of the nine other quotations should be a variable quantity of each country's intermediary for the British pound. For instance, take the quotation in Yokohama, 24 and ½ pence: it should be 9·79 yens for one pound; thus—

240 pence ÷ 24·5 = 9·79 yens.—Ans.

We will examine these quotations.

(*a*) Paris cheques 25 f. 32 c. What does this mean?

On Table IV. the monetary sign for 1 grain of gold attached to France is 22·3196 centimes (100 centimes in a franc). The sum is—

$$25{\cdot}32 \times 100 \div 22{\cdot}3196 = 113{\cdot}443 \text{ grains of pure gold.—Ans.}$$

By reference to Table IV. we find that the weight of pure gold in the sovereign is 113·0016, and rightly conclude that the quotation means francs and centimes for one pound. This shows that the Paris rate for cheques on London is at ·39 per cent. premium on par, weight for weight.

By reference to Table V., fixed gold pars, against France will be found 25·22 francs for one pound. The quotation 25·32 shows ·39 per cent. premium on par.

(*b*) Italy, sight, 27 lire 49. What does this mean?

The terms lire and franc indicate the same weight of metal, namely, 4·480359 grains of pure gold. 100 centesimi make 1 lire. The sum is—

$$27{\cdot}49 \times 100 \div 22{\cdot}3196 = 123{\cdot}165 \text{ grains of pure gold.—Ans.}$$

27 lire 49 centesimi being the rate upon London, this is the rate for one pound. This shows that the Italian rate is 8·9 per cent. above fixed par. This indicates that the intermediary consists of inconvertible paper based on gold to the extent of 7 per cent. premium in paper upon gold, since the cost of the transmission of metal, &c., would not perhaps exceed 1·9 per cent.

Lire and franc being terms for the same weight of gold, we turn to Table V., and against France find f. 25·22; this deducted from 27·49 shows 8·9 per cent. upon the lower figures.

(*c*) Shanghai T.T. 2*s.* 7⅛*d.* What does this mean?

It means that someone in Shanghai has bought or is prepared to buy or sell a telegraph transfer on London at the rate of 2*s.* 7⅛*d.* to be paid there for 1 tael paid in Shanghai. It is in its order an exchange of silver for gold, and not the other way round, an exchange of gold for silver. The scientific, common-sense, and straightforward quotation, therefore, is taels per pound. The sum is—

$$240d. \div 31{\cdot}875d. = 7{\cdot}53 \text{ taels per pound.}$$

Let us look this way at it, and afterwards in the present mode of quoting and working. The tael is 516·4058 grains of silver; the pound 113·0016 grains of gold. The ratio between the metals in London, 33·31 of silver to 1 of gold. What ratio is yielded between the metals by the Shanghai price of the pound? The sum is—

$$\frac{516{\cdot}4058 \times 7{\cdot}53}{113{\cdot}0016} = 34{\cdot}41 \text{ ratio of silver to 1 of gold.—Ans.}$$

The London ratio is 33·31 to 1. The difference between 33·31 and 34·41 is 3·3 per cent. on the smaller amount. This is a premium of 3·3 per cent. paid in Shanghai for the London equivalent at the ratio of 33·31 to 1.

Now we will look at the transaction as it is quoted, viz. a fixed rate in Shanghai for a variable rate in London. The weight of gold indicated by $31\frac{7}{8}d.$ is 16·008 grains of gold. The sum is—

31·75*d.* ÷ 2·1238*d.*, i.e. sign for 1 grain = 16·008 grains of gold.
516·4058 grains of silver ÷ 16·008 grains of gold = 32·26 of silver to 1 of gold.—Ans.

The difference between 32·26 and 33·31 is 3·25 per cent. on the smaller amount.

By reference to Table VII., gold for silver, against China 32·92*d.* is found as the equivalent British price for 1 tael at 33·31 parts of silver to 1 part of gold. This shows that London gives 3·15 per cent. less than absolute par for the tael.

(*d*) Calcutta $15\frac{15}{16}d.$ T.T. What does this mean?

As this means either a genuine silver rupee price in Calcutta for a portion of a pound sterling, or a fictitious rupee price for the same sum, first try whether it is a genuine rupee price by finding how many grains of gold the quotation indicates. 165 grains of silver in a rupee.

15·9375*d.* ÷ 2·123863*d.* = 7·50 grains of gold.

Take the ratio between the metals at 33·31 of silver to 1 of gold. Then—

$$\frac{7{\cdot}5 \times 33{\cdot}31}{165} = \text{rupee } 1{\cdot}51.\text{—Ans.}$$

We find it is a fictitious rupee, carrying a fictitious value of 50 per cent.

By reference to Table VII., against British India the equiva-

lent pence for 1 rupee at 33·31 to 1 is 10·52*d.* 15·9375*d.* shows that upon 10·52*d.* the premium is 48·2 per cent. The use of the monetary sign for 1 grain of pure metal is shown here as a multiplier. What is the British equivalent to 1 rupee at 33·31 to 1? The sum is—

$$165 \div 33{\cdot}31 \times 2{\cdot}123863d. = 10{\cdot}57d.\text{—Ans.}$$

(*e*) Rio de Janeiro $8\frac{9}{16}d.$ What does this mean?

$$8{\cdot}0625 \div 2{\cdot}123863d. = 3{\cdot}8 \text{ grains of gold.—Ans.}$$

In Table IV., against Brazil the weight of pure gold in the milrei will be found; it is 13·8348 grains. This indicates that the quotation is for an inconvertible paper milrei, and that the premium in paper upon the gold milrei is 261 per cent.

(*f*) Buenos Ayres 18·97*d.* What does this mean?

$$18{\cdot}97 \div 2{\cdot}123863d. = 8{\cdot}93 \text{ grains of gold.—Ans.}$$

In Table IV., against Argentina the weight of gold in the peso is 22·4017 grains of gold. This shows that the inconvertible paper is meant, and that gold in paper is at 150 per cent. premium.

Exchange between effective Gold and basal Gold Systems.

As an example :—It is desired to know the rate in London for an Argentine peso, the price of gold in the latter country being 150 per cent. premium in paper. The discount equivalent to 150 per cent. premium must be deducted from the par rate between the British Isles and Argentina. This par is found on page 74, and is 47·578 pence for one peso. 150 per cent. is equivalent to 60 per cent. discount. (See page 71 for process.)

The sum is—

47·578 pence — 60 per cent. discount = 19·031 pence: Ans.

Exchange between basal Gold and effective Gold Systems.

As an example :—Between the same countries as above. On page 75 the Argentine par with the British Isles is given in 504·431 centavos. The sum is—

504·431 centavos + 150 per cent. premium = 1260·877 centavos or 12 pesos 60·877 centavos: Ans.

Section ℓℓ.

THEORY AND PRACTICE OF THE CHAIN RULE.

COMPOUND arbitration or compound proportion, called the chain rule, which has existed from the time of Euclid, is better known and more widely practised on the Continent of Europe than in the British Isles.

It is particularly valuable in the exchanges of currency intermediaries, and highly serviceable in calculations of the exchanges of other things, especially where currency intermediaries form a part of the links. Facility of use of the chain rule depends on a quick discernment of the accurate formation of the chain to arrive at a true result of the given problem.

In a statement according to the chain rule the two terms in the same line, which in these pages are usually connected by the sign of equality, are not necessarily equal in the ordinary sense of the term, but they correspond to one another and are equivalent in respect of some feature or property. Thus it is absurd to say that three cows are equal to forty sheep, though they may be of equal money value. It is similarly absurd to say that so many street lamps are equal to so many dollars, though they may cost the dollars to keep them burning for a certain time. In these cases the symbol = should be understood to mean "corresponds to," and might be advantageously replaced by *c* or by *v* for *versus*.

The statement of the problem consists of two columns. The first line of the two columns states the question to be answered, the second line must begin with the same description of thing as the first ends with, and so on.

Let us analyze the following problem :—

The expense of supplying 2780 street lamps with oil amounted

in eight months to 6800 dollars, the cost of the oil was 12 dollars per cwt.; what will be the expense of 4777 lamps for 7 and ½ months in British money, the oil being at a cost of 20 dollars per cwt.? The British pound is 113·0016 grains of gold, the American dollar is 23·22 grains of gold.

The question is what is the cost of oil in British pounds for 4777 lamps under given conditions.

The first line therefore is,—

? (pounds) *v* 4777 lamps;

the second is the number of lamps for which 6800 dollars is paid,—

lamps 2780 *v* 6800 dollars;

the third is the dollars paid for the first purchase of oil,—

dollars 12 = 1 cwt.;

the fourth is the second price in dollars for a cwt. of oil,—

cwt. 1 = 20 dollars;

the fifth is the conversion of dollars into pounds through the equivalent weights of gold,—

dollar 1 *v* 23·22 grains of gold;
grains of gold 113·0016 *v* 1 pound.

We have now returned to the pound sterling, which constituted the first term, and the chain is complete; but we have to consider an entirely different element in the problem—namely, the period of burning of the lamps in the two cases. These periods do not form part of the chain, and do not come under the rule by which each line commences with the same description of thing as that with which the preceding line terminates. The two periods may, however, be treated as though they formed a supplementary link,—

months 8 *v* 7·5 months.

In some of the following examples two or three supplementary links dealing with premiums and discounts occur after the completion of the chain.

The fifth equation might with equal accuracy be,—

Dollars 4·8665 *v* 1 £

It would give the true chain sequence, but would hide the weights.

The following is the statement of the chain :—

? (pounds) *v* 4777 lamps
lamps 2780 *v* 6800 dollars
dollars 12 = 1 cwt.
cwt. 1 = 20 dollars
grains of gold 113·0016 *v* 23·22 grains of gold
months 8 *v* 7·5 months

$$\frac{4777 \times 85 \times 1 \times 5 \times 11{\cdot}61 \times 2{\cdot}5}{278 \times 1 \times 1 \times 56{\cdot}5 \times 08 \times 1} = £3751{\cdot}60$$

"The Elements of Arithmetic," by P. Ghosh, in use in Indian schools and colleges, reached a twelfth edition in 1888. In this work the chain rule is made much of.

Schönberg's chain rule in English is a useful little tract, and can be obtained at Messrs. Effingham Wilson & Co.'s, Royal Exchange, for one shilling. It is the only entry upon the subject under the head of "Arithmetic" in the British Museum catalogue.

It will be observed that the chain rule is only a series of ratios, and the most practical way of dealing with it is to consider, *will the alteration in question increase or decrease the result?* Thus to consider the problem just exemplified. More lamps increase the result in the ratio, as $\frac{4777}{2780}$. Less time decreases, as $\frac{7 \text{ and } \frac{1}{2}}{8}$. Price increases, as $\frac{20}{12}$. The weight of the dollar is less than the pound, as $\frac{23{\cdot}22}{113{\cdot}0016}$, or to sum up,—

$$\$6800 \times \frac{4777 \times 7 \text{ and } \frac{1}{2} \times 20 \times 23{\cdot}22}{2780 \times 8 \times 12 \times 113{\cdot}0016} = £ \text{ required as before.}$$

Section III.

THE MECHANISM OF THE WORLD'S PRESENT PRICES, AND ITS SEVEN DIFFERENT SYSTEMS OF FOREIGN AND COLONIAL EXCHANGES OF INTERMEDIARIES.

I HOPE my exposition may justify the title which I have given to this most important sociological question. There are divers local prices of things. In the interest of backward countries, calico, tea, or other substances are used as intermediaries to facilitate the interchanges of things, and the substance thus used does the work of money as an equivalent—not as a token—in the exchange. Barter is the direct exchange of one thing for another. No intermediary is used in barter. All economists admit that barter is, or should be, the basis of all interchanges of things. My purpose is to prove by very simple arithmetical formula (1) that if the world possessed but one substance as its measure of value and equivalent in exchange, the world's interchanges of things could be effected on the conditions of barter. (2) That there are in the trading world at the present time seven different monetary and currency intermediaries, five of which are of a vastly different nature. (3) That these seven different intermediaries produce forty-two different prices of intermediaries, some of which either confer a bounty or impose a tax in international or intercolonial interchanges of things, resulting in the unfair encouragement of production of things in some countries and the handicapping of industries in other countries to an extent which can be measured by heavy percentages.

In the following examples of the working of the exchanges of intermediaries, weights of metal will be used in preference to monetary signs.

THE WHOLE WORLD'S FUTURE SINGLE INTERMEDIARY EXEMPLIFIED IN TRAVEL, COMMERCE, AND FINANCE: SCIENTIFIC AUTOMATIC GOLD.

THE FOREIGN AND COLONIAL EXCHANGES OF SCIENTIFIC AUTOMATIC GOLD FOR SCIENTIFIC AUTOMATIC GOLD.

Assume that the whole world's chief money of account consists of 6 grams of pure gold or 92·594 grains, with appropriate alloy to make one chief standard coin to bear the effigies of each mint issuing it; that monetary signs are gone for ever, and that the sole nomenclature of money is weight, and we have reached a haven of rest in the simplicity of prices and the world's foreign and colonial exchanges. One instead of seven measures of prices. Two proportions in the place of forty-nine different proportions at present composing the forty-eight different exchanges of the seven intermediaries. Examples will be given for the guidance of those who travel, who are engaged in commerce or deal in finance and stocks. Use will be made of the chain rule.

I. TRAVEL.

To convert forty gold coins bearing the Brazilian stamp into British gold in London. One-half per cent. would cover the cost of transmission of gold between the British Isles and Brazil. An eighth of 1 per cent. would be a fair profit. The sum is—

$$40 \times 6 - \tfrac{5}{8}\% = 238{\cdot}5 \text{ grams.—Ans.}$$

238·5 grams in British money for 240 grams of Brazilian money.

II. COMMERCE.

Silk in China at 4·875 decigrams of gold for 23·25 grams of silk, shipping insurance and all other charges exclusive of

freight to London, 10 per cent. on cost, the rate of exchange at 1 per cent. discount. What is the cost? The sum is—

? decigrams of gold = 23·25 grams of silk
grams of silk 23·25 = 4·875 decigrams of gold
100 = 110 with charges
discount on exchange 100 = 99

$$\frac{4{\cdot}875 \times 110 \times 99}{100 \times 100} = 5{\cdot}309 \text{ decigrams.—Ans.}$$

If the purchaser of the bill becomes at the same time the possessor of the silk, 5·107 is the cost of the silk to London without freight and charges, but if the seller of the bill still retains possession of the silk, he has not recovered what he has spent on the silk, and the deficiency he must obtain in a proportionate higher price at the time of sale.

Perhaps it may be roughly stated that at the present time, taking Austria, Hungary, and Japan as forming part, four-fifths of the world's trade in value is carried on by means of either an automatic gold or a gold-cum-counter-charge intermediary. Between these countries the extreme limits to the fluctuation of the exchanges may be taken at about 3 per cent.

III. Finance and Stocks.

I. A financier or Stock Exchange operator in London desires to know what would be the cost of property purchased in that city for 28,984·35 kilos of pure gold, and sent to China. Transmission, insurance, stamps, brokerage, time occupied in the transaction, and other charges being $2\frac{1}{2}$ per cent. The sum is—

$$28{,}984{\cdot}35 + 2\tfrac{1}{2} \text{ per cent.} = 29{,}708{\cdot}96$$

II. Between the same places property bought at 84 per cent. What must it sell at to return the cost?

$$84 + 2\tfrac{1}{2} \text{ per cent.} = 86{\cdot}15 \text{ per cent.}$$

Between two countries each of which is in possession of an effective gold standard the exchanges are conducted in precisely the same manner as in the above examples; the only difference being that the metric weights are used, and no monetary signs are introduced, the weight of pure gold, the thing signified, taking the place of the signs. Where coinage charges exist,

they are definite percentage charges affecting the exchange of the intermediary upon which the charge is imposed.

A miligram of gold is about the 448th part of a franc, and the French monetary sign for it is about ·22 of a centime; $\frac{1}{16}$ of a miligram is about the 7168th part of a franc; the monetary sign for the 6400th part of a franc is $\frac{1}{64}$ of a centime.

A miligram of gold is about the 7322nd part of a British pound; the British monetary sign for the 7680th part of a pound is $\frac{1}{32}$ of a penny.

When this system is adopted and maintained by the whole world, a price would be a definite weight of pure gold, and a rate of exchange would also be a definite weight of pure gold, and all ambiguity about the foreign and colonial exchanges would be gone for ever. Also the interchanges of things would be conducted on the conditions of barter.

THE WORLD'S PRESENT INTERCHANGES OF THINGS EFFECTED BY MEANS OF SEVEN INTERMEDIARIES.

Though the world may in the course of time use but one intermediary, there would be in the international and inter-colonial interchanges of things four prices and two rates of exchange of the one intermediary. Take A to denote the port of one country and B the port of another country. There would be two prices in A, one of the thing sent to B, and another of the thing received from B, and a rate of exchange consisting of a small percentage weight more or less than cost of the thing sent to B. Two prices in B, one of the thing sent to A and another of the thing received from it, and a rate of exchange on the cost of the thing sent to A. We have seen how that under one intermediary for the whole world the limit to the fluctuation of the exchange of the intermediary would be confined within the narrowest limits. Of the seven intermediaries with which we are about to deal, two—namely, the gold-cum-coinage charge one and the silver-cum-coinage charge one—are burdened with a fixed percentage charge. This charge varies from a small sum per mille to 2 per cent. To the extent of the charge it is an impediment in the interchanges of things, enhancing the inter-

national price of a thing received in the country imposing the charge.

THE WORLD'S PRESENT SEVEN MONETARY AND CURRENCY INTERMEDIARIES.

I. Scientific automatic gold as the British pound.
II. Scientific automatic silver as the Shanghai tael.
III. Gold-cum-coinage charge as the Australian pound.
IV. Silver-cum-coinage charge as the Mexican peso.
V. Silver-cum-counter charge as the Indian exchange rupee.
VI. Inconvertible paper based on gold as the Argentine peso.
VII. Inconvertible paper based on silver as the Columbian sol.

These seven different descriptions of intermediaries which are used in the interchanges of things within countries, and in the conduct of their foreign and colonial commerce, produce forty-nine different descriptions of exchanges of intermediaries, which are as follows: —

I. **Automatic Gold** for automatic gold, or for II. Automatic silver, or for III. Gold-cum-coinage charge, or for IV. Silver-cum-coinage charge, or for V. Silver-cum-counter charge, or for VI. Inconvertible paper based on gold, or for VII. Inconvertible paper based on silver.

VIII. **Automatic Silver** for automatic silver, or for IX. Automatic gold, or for X. Gold-cum-coinage charge, or for XI. Silver-cum-coinage charge, or for XII. Silver-cum-counter charge, or for XIII. Inconvertible paper based on gold, or for XIV. Inconvertible paper based on silver.

XV. **Gold-cum-coinage charge** for gold-cum-coinage charge, or for XVI. Automatic gold, or for XVII. Automatic silver, or for XVIII. Silver-cum-coinage charge, or for XIX. Silver-cum-counter charge, or for XX. Inconvertible paper based on gold, or for XXI. Inconvertible paper based upon silver.

XXII. **Silver-cum-coinage charge** for Silver-cum-coinage charge, or for XXIII. Automatic gold, or for XXIV. Automatic silver, or for XXV. Gold-cum-coinage charge, or for XXVI. Silver-cum-counter charge, or for XXVII. Inconvertible paper based on gold, or for XXVIII. Inconvertible paper based on silver.

XXIX. **Silver-cum-counter charge** for silver-cum-counter charge, or for XXX. Automatic gold, or for XXXI. Automatic silver, or for XXXII. Gold-cum-coinage charge, or for XXXIII. Silver-cum-coinage charge, or for XXXIV. Inconvertible paper based on gold, or for XXXV. Inconvertible paper based on silver.

XXXVI. **Inconvertible paper based on Gold** for inconvertible paper based on gold, or for XXXVII. Automatic gold, or for XXXVIII. Automatic silver, or for XXXIX. Gold-cum-coinage charge, or for XL. Silver-cum-coinage charge, or for XLI. Silver-cum-counter charge, or for XLII. Inconvertible paper based on silver.

XLIII. **Inconvertible paper based on Silver** for inconvertible paper based on silver, or for XLIV. Automatic gold, or for XLV. Automatic silver, or for XLVI. Gold-cum-coinage charge, or for XLVII. Silver-cum-coinage charge, or for XLVIII. Silver-cum-counter charge, or for XLIX. Inconvertible paper based on gold.

A necessary condition of a scientific automatic metal monetary standard, constituting an absolute measure of value and an equivalent in exchange, is that the substance so used should do its work without fetter or favour on the part of the Government. A coinage charge is a fetter. Legislation whereby a given weight of metal does the work of a larger weight is an impediment to trade imposed by Government. As, for instance, at the present time the British Indian rupee of 165 grains weight of pure silver does the work as an intermediary of 250 grains of silver, or 55 per cent. more than the intermediary used in effecting local exchanges, if not throughout the whole country, certainly on the seaboard of India, Ceylon, and Mauritius.

Another essential condition of an effective metal monetary system is that State and bank credit instruments in the shape of notes payable on demand are convertible into the weight of standard substance indicated upon the note at the will of the holder of the note without question, delay, or expense.

The term silver-cum-counter charge denotes that a Government by legislation has conferred a fictitious value upon silver. A counter is not meant for use at its intrinsic worth. Metal, to

do its work as money, is intended to pass as an intermediary in some near relation to the value factors contained in it in comparison with the value factors contained in the things for which it is exchanged. This is the meaning of the statement, "That money, i.e. standard money, is an equivalent in exchange."

A coinage charge adds to the cost of the goods imported into a country imposing the charge. A coinage charge does not benefit the export trade of a country imposing such a charge, since the metal forming its standard substance has no more worth in other intermediaries than the world's market price of silver as an article of commerce. The fact that a metal is an article of commerce largely required for other than currency purposes mainly constitutes its fitness for use as a measure of value and an equivalent in exchange.

Coinage charge on the standard substance being of a certain nature in each country, it becomes unnecessary to present in detail instances for the instruction of travellers, international and intercolonial traders, and financiers. In a chain rule statement of an operation between a country and another imposing such a charge, a link in the chain affecting the exchange of the intermediaries would be added; say the charge is $1\frac{1}{2}$ per cent.

$$100 = 101{\cdot}5$$

A traveller could never lose by this charge; he should sometimes gain, but the gain would never be much.

FACTORS IN THE WORLD'S PRESENT PRICES AND EXCHANGES OF INTERMEDIARIES.

We have seen that the day may come when the whole world shall have three factors in its money for all purposes. A weight of pure metal; a premium or more than a given weight; a discount or less than a given weight.

The world's seven present intermediaries constituting prices and the foreign and colonial exchanges embrace twelve factors, as follows:—

I. Weight of gold.

II. Monetary signs for weights of gold.

III. Weight of silver.
IV. Monetary signs for weights of silver.
V. Charge for coinage.
VI. Charge for constituting fictitious money by legislation.
VII. Charge in the shape of premium in paper for silver.
VIII. Charge in the shape of premium in paper for gold.
IX. Charge on the movement of metal.
X. Charge for the exchange of one currency for another.
XI. Fixed pars of exchange between intermediaries.
XII. Absolute pars of exchange of the day between intermediaries.

THE FACTORS WHICH ARE USED IN EACH CURRENCY SYSTEM.

I. **Automatic Gold.**—Weights and monetary signs for gold. A price in this system is a weight of pure gold. As an international intermediary; a charge on the movement of metal and a charge for the exchange of this currency for another play their part.

II. **Automatic Silver.**—The remarks upon automatic gold apply to automatic silver.

III. **Silver-cum-coinage Charge.**—Weights and monetary signs for silver, a fixed percentage coinage charge, a charge on the movement of metal, and a charge for the exchange of this currency for another. Price in this system is a silver-cum-coinage charge price.

IV. **Gold-cum-coinage Charge.**—The remarks under silver-cum-coinage charge apply to gold-cum-coinage charge.

V. **Silver-cum-counter Charge.**—Weights and monetary signs for silver with a variable percentage premium on silver to do the work of a heavier weight of silver; a charge on the movement of metal, and a charge for the exchange of this currency for another. The rate for the foreign and colonial exchanges of this system is a silver-cum-counter charge rate.

VI. **Inconvertible Paper based on Gold.**—Weights and monetary signs for weights of gold, a fluctuating percentage paper premium on gold which acts as an equivalent discount on the weight of gold in the chief money of account in use in

the system, a charge on the movement of metal, and a charge for the exchange of this currency for another. Price and a rate of exchange of the intermediary are both inconvertible paper based on gold price and rate of exchange.

VII. **Inconvertible Paper based on Silver.**—The remarks under inconvertible paper based on gold apply to inconvertible paper based on silver.

FIXED AND ABSOLUTE PARS OF EXCHANGE. RATIOS.

In working the forty-nine exchanges of the seven intermediaries the first step is to determine the fixed or absolute ratio between them. Fixed pars exist between countries the standard in which is of the same metal. Gold pars are different countries' different monetary signs for the same weight of gold. Silver pars are different countries' monetary signs for the same weight of silver. Absolute pars are subject to daily fluctuations, and depend upon the ratio of the day between the metals gold and silver, the fluctuating percentage bounty produced by a counter charge, or the discount on the weight of gold or silver resulting from the inconvertible paper premium on the metals. When the fixed or absolute pars are determined, then come into play in percentage form IX. and X., charge on the movement of metal and charge for the exchange of one currency for another.

N.B.—There is so much perplexity about the exchanges of intermediaries resulting from the unscientific teaching and practice in the world, that it should be thoroughly understood that the percentage deviation from fixed and absolute pars of exchange should always be taken on the currency of the country commencing the operation. Thus in the British Isles it would be a premium or a discount upon pounds, shillings, or pence for the currency of another country. This is the scientific method of working the exchanges. If I buy at a premium, I shall have less to receive than if I buy at par. If I buy at a discount, I shall have more to receive than if I buy at par.

Say a merchant or a financier buys something to send to another country, and sells his bill of exchange for the

purchase amount at a discount, it is evident that he has not received back the cost of the thing. By making his bill of such an amount that after deducting the discount the proceeds would equal the cost, is one way of meeting the difficulty. The other is by an enhanced price in the place where the thing is sold. If the bill is sold for more than the cost of the thing, the thing can be sold for less in the place it is sent to.

If a bill of exchange is sold at a premium on par, the seller obtains more than if it sold at par; whereas a buyer of the bill at a premium on par obtains less than if it sold at par.

The following would be the links in a chain rule sum :—

If a premium, say 50 per cent., is conferred on metal by legislation, the link in working for an answer in rupees would be—

$$100 = 150$$

The premium in paper upon gold or silver is also worked in the same manner; say the paper premium is 140 per cent., the statement is—

$$\text{paper } 240 = 100 \text{ metal}$$

When a shipper of goods sells his bill against the goods at a premium upon fixed or absolute par, he obtains more than the cost of his goods, and therefore can afford to sell them for less at the port of discharge: this premium must therefore be taken at an equivalent discount as a link in the chain; say he has sold at 2½ per cent. premium, the discount is 2·44 and the link would appear as—

$$100 = 97{\cdot}56$$

When a shipper of goods sells his bill against the goods at a discount upon fixed or absolute par, he obtains less than the cost of his goods, and therefore must obtain that amount more at the port of discharge, the discount therefore must be taken at an equivalent premium as a link in the chain; say he has sold at 2½ per cent. discount, the equivalent premium is 2·56 and the link result appear as—

$$100 = 102{\cdot}56$$

A percentage charge which adds to the cost of any thing would take its place in the chain as the less corresponding to

the greater; say the charge is 2½ per cent., the equation would be 100 = 102·5. Anything in the nature of a percentage which would diminish the cost of a thing would take its place in the chain as the greater corresponding to the less; say the discount is 2½ per cent., the equation would be 100 = 97·5.

We now proceed with sums illustrative of the exchanges of intermediaries.

I.

AUTOMATIC GOLD FOR AUTOMATIC GOLD.

I. TRAVEL.

State and other accounts in Canada are kept in dollars. The dollars of the U.S.A. and the British pound are legal tender. The mint issue weight of a dollar is 23·22 grains, that of a British pound 113·0016 grains. What amount in British money in London would $580 exchange at ½ per cent. discount command?

XII. The sum is—

? (£) = 580 dollars
$1 = 23·22 grains of gold
grains of gold 113·0016 = £1
100 = 99·5 discount

$$\frac{29 \times 11{\cdot}61 \times 1 \times 19{\cdot}9}{1 \times 56{\cdot}5008} = £118\ 11s.\ 10d.\text{—Ans.}$$

FIXED PARS OF EXCHANGE.

$4·866 = £1 Pence 49·316 = $1

II. COMMERCE.

XIII. What would be the cost of a lb. of silk in London purchased in Canada at $4 per lb., packing, shipping, insurance, and all other charges except freight to London, &c.—which is paid there—12 per cent.; and the discount in dollars for the pound, ½ per cent.?

If a bill of exchange is sold at a discount on par, the seller obtains less than if it sold at par; whereas a buyer of a bill at a discount on par obtains more than if it sold at par. As between two countries the one in which the rate of exchange is much above par is said to be against the country in which the high rate exists.

XIII. The sum is—

? (shillings) = 1 lb. silk
silk lb. 1 = 4 dollars
dollar 1 = 23·22 grains of gold
grains of gold 5·65 = 1 shilling
100 = 112 with charges
exchange 100 = 99·5

$$\frac{1 \times 4 \times \overset{11\cdot61}{\cancel{23\cdot22}} \times 1 \times \overset{56}{\cancel{112}} \times \overset{19\cdot9}{\cancel{99\cdot5}}}{1 \times 1 \times \underset{1\cdot13}{\cancel{5\cdot65}} \times \underset{25}{\cancel{100}} \times \underset{25}{\cancel{100}}} = 18s.\ 4d.\ \text{per lb.—Ans.}$$

III. FINANCE AND STOCKS.

What is the cost of property in London bought in Canada at $18,976, stamps, insurance, commission, and all charges to London, 2 and ½ per cent.?

XIV. The sum is—

? (pounds) = 18,976 dollars
dollar 1 = 23·22 grains of gold
grains of gold 113·0016 = £1
100 = 102·5 with charges

$$\frac{\overset{593}{\cancel{18,976}} \times \overset{11\cdot61}{\cancel{23\cdot22}} \times 1 \times \overset{20\cdot5}{\cancel{100}\cancel{2\cdot5}}}{1 \times \underset{3\cdot5313}{\cancel{113\cdot0016}} \times \underset{10}{\cancel{100}}} = £3996\ 6s.\text{—Ans.}$$

Stock is quoted in London at 91 and ¼ per £100. What is the cost in the U.S.A. per £100, charges 2 and ½ per cent.?

XV. The sum is—

? (dollars) = £100 stock
stock £100 = £91·25
£1 = 113·0016 grains of gold
grains of gold 23·22 = 1 dollar
100 = 102·5 with charges

$$\frac{91\cdot25 \times \overset{28\cdot2504}{\cancel{113\cdot0016}} \times 1 \times \overset{4\cdot1}{\cancel{100}\cancel{2\cdot5}}}{1 \times 23\cdot22 \times \underset{1}{\cancel{100}}} = \$455\cdot17.\text{—Ans.}$$

AUTOMATIC GOLD FOR AUTOMATIC SILVER.

The average of the gold prices of silver in London for 1872 is 60 and $\frac{5}{16}$ per standard ounce, giving the ratio of 15·64 parts of silver to 1 part of gold. The present ratio of silver to 1 of gold is 33·31, an increase of 113 per cent. In the past quarter of a century the silver price of gold has risen 113 per cent., and the gold price of silver has fallen 53·33 per cent. In August, 1897, the ratio was 39·5 parts of silver to 1 part of gold. The present ratio is taken in the following examples, and for the sake of comparison the ratio of 1872 will be taken.

I. TRAVEL.

A tael of silver is not a currency met with by travellers. But China uses the Mexican dollar as an intermediary in her foreign trade. The Chinese Government has not done anything to fetter or favour the Mexican dollar. It effects its work as a weight of pure silver. The percentage additional cost in silver for its manufacture into pesos including coinage charge in Mexico does not add to its value in international interchanges.

It is desired to exchange 285 Mexican dollars or a promise to pay them on demand of equal value with the dollars into British money. The Mexican peso or dollar is 377·181 grains of silver, and the pound is 113·0016 grains of gold; the ratio between the metals being 33·31, and the exchange dealers charge 1 and $\frac{1}{2}$ per cent.

XVI. The sum is—

? (pounds) = 285 dollars
dollar 1 = 377·181 grains of silver
silver 33·31 = 1 gold
grains of gold 113·0016 = £1
100 = 98·5

$$\frac{57 \qquad\qquad 19{\cdot}7}{\cancel{285} \times 377{\cdot}181 \times 1 \times 1 \times \cancel{98{\cdot}5}} = £28\ 2s.\ 8d.\text{—Ans.}$$
$$1 \times 33{\cdot}31 \times 113{\cdot}0016 \times \cancel{100} \qquad 4$$

There is another way of doing this sum. Find the par established between the dollar and the British shilling at the

given ratio. On the result deduct 1 and ½ per cent., and with that multiply the 285 dollars. The twentieth part of a pound is 5·65 grains of pure gold.

XVII. To find the par the sum is—

$$\frac{377{\cdot}181 \text{ silver}}{\text{ratio } 33{\cdot}31 \times 5{\cdot}65 \text{ gold}} = 2{\cdot}004 \text{ shillings.—Ans.}$$

then 285 × 2·004 − 1½ per cent. = £28 2*s.* 7*d.*—Ans.

At the ratio of 15·64 parts of silver to 1 of gold the traveller would in 1872 have obtained £59 18*s.* for the 285 Mexican dollars. This can be discovered by substituting 15·64 for 33·31 in the above examples. A measurable difference which made a deep impression upon the mind of the traveller, who, if he did not trace the mechanism of the change, felt it in his pocket.

ABSOLUTE PARS OF EXCHANGE.

Ratio 15·64 to 1	Ratio 33·31 to 1
$4·68 = £1	$9·98 = £1
Pence 51·22 = peso 1	Pence 24·04 = peso 1

II. COMMERCE.

The price of silk in China is 816 taels per picul, all charges to London except freight 12 per cent., the rate of exchange 2 per cent. discount. 1 picul equals 140 lbs. av., the ratio between the metals 33·31 to 1; a shilling is the British sign for 5·65 grains of gold, the tael 516·4058 grains of silver.

XVIII. The sum is—

? (shillings) = 1 lb. av. of silk
lbs. 140 = 1 picul
picul 1 = 816 taels
tael 1 = 516·4058 grains of silver
silver 33·31 = 1 of gold
grains of gold 5·65 = 1 shilling
100 = 112 with charges
exchange 100 = ·98 discount

$$\frac{1 \times 1 \times \overset{51}{\cancel{816}} \times 516{\cdot}4058 \times 1 \times 1 \times \cancel{112} \times 98}{\underset{5}{\cancel{140}} \times 1 \times 1 \times 33{\cdot}31 \times 5{\cdot}65 \times \underset{25}{\cancel{100}} \times \underset{25}{\cancel{100}}} = \underset{4}{17s.\ 7d.} \text{ per lb.}$$

For the same quality of silk and at the same price in China, the same charges, but the ratio between the metals at 15·64 to 1 the cost in the British Isles was 37*s.* 4½*d.* per lb.

III. FINANCE AND STOCKS.

How many taels will £100,000 purchase? The ratio between the metals 33·31; all charges for transmission and becoming possessed of the equivalent taken at 1 per cent.

XIX. The sum is—

? (taels) = 100,000 British pounds
British pound 1 = 113·0016 grains of gold
grain of gold 1 = 33·31 grains of silver
grain of silver 516·4058 = 1 tael
exchange 100 = 99

$$\frac{1000 \quad 56{\cdot}5008}{\cancel{100{,}000} \times \cancel{113{\cdot}0016} \times 33{\cdot}31 \times 1 \times 99} = \text{taels } 721{,}611{\cdot}27.\text{—Ans.}$$
$$1 \times 1 \times \underset{258{\cdot}2029}{\cancel{516{\cdot}4058}} \times \underset{1}{\cancel{100}}$$

At the ratio of 15·64 to 1 this sterling amount would have commanded at the same percentage charge taels 338,817·17 only.

To reach absolute accuracy in large sums, not less than six decimal places should enter into the calculation. The ratio between the metals, as has been stated, is worked on 943; it is actually 942·9955 and more. The ratio has been taken at 33·31; it is actually 33·3066 and more. This difference in the factors upon the par of exchange for £100,000 in taels only amounts to 1 per 10,000 taels.

AUTOMATIC GOLD FOR SILVER-CUM-COUNTER CHARGE.

The term counter is used to denote that a State by legislation confers a fictitious value upon a substance as an intermediary in the interchanges of things. This can be done, as we see, by one State quite as easily as it was done by a combination of several States when they determined upon and effected *for a period* a legislative fixture of ratio between gold and silver whereby these metals for years exchanged at an approximate ratio of 15½ to 16 parts of silver to 1 part of gold all the world over. Both schemes are utterly in opposition to the science of money as propounded by the geniuses of the world who have paid

attention to the subject from Xenophon, in the fifth century before Christ, to the present time. The British Indian mints being closed against the reception of silver from the public, 295 millions of people inhabiting British India, Burma, Ceylon, and Mauritius have no standard measure of value and equivalent in exchange. The rupee of 165 grains of pure silver was their standard coin, and is now the measure of their internal interchanges. But as a measure of their international and intercolonial interchanges they now possess a silver-cum-counter-charge intermediary. At present the universal gold value, or price, of the rupee at 33·31 parts of silver to 1 part of gold is 5·27 grains of pure gold, the British monetary sign for which is 11·39 pence. The rate for telegraph transfers upon India this day is $15\frac{31}{32}$ pence per rupee. This shows that legislation resulting in the closure of the mints in British India, and a duty on silver has added a fictitious value of 40·2 per cent. to the intermediary used in the international interchanges of these 295 millions of people. In other words, the 165 troy grains of silver do the work of 231·33 grains of silver. The possession by India, Burma, Ceylon, and Mauritius of a scientific automatic gold standard, which it is devoutly to be hoped may be brought about, would be the justification for the temporary use of such a rotten intermediary.

I. TRAVEL.

What could be obtained in London for 760 rupees in bank or equally good credit notes, and for 84 silver rupees, the intermediary rupee having a 40 per cent. counter-charge premium charges 1 per cent. discount?

XX. The sum is—

? (British pounds) = 760 British rupees
rupee 1 = 165 grains of pure silver
silver 33·31 = 1 of gold
grains of gold 113·0016 = 1 British pound
100 = 140 with premium
100 = 99 exchange

$$\frac{190 \quad 33 \qquad\qquad 7}{760 \times 165 \times 1 \times 1 \times 140 \times 99} = \text{£}46\ 3s.\ 7d.\text{—Ans.}$$
$$1 \times 33{\cdot}31 \times 113 \quad 28{\cdot}2504 \qquad 5 \times 100$$
$$1$$

There is another method by which the same result can be reached, as given under absolute pars below. At 33·31 parts of silver to 1 part of gold, the £1 equals 22·81 rupees.

XXI. The sum is—

750 ÷ 22·81 + 40 per cent. − 1 per cent. = £46 3*s.* 5*d.*—Ans.

In 1872, at the then ratio, 10·71 rupees equalled £1, the absolute par, and then at the same discount the 760 rupees yielded £69 6*s.* 9*d.*

Rupees are still the circulation of India, Ceylon, and the Mauritius; upon their import into India there is a charge of 5 per cent. Take the charge for converting the 84 rupees into sterling at 1½ per cent., charges for transmission to India, import duty, and time interest at 8 per cent., and the ratio of the day between the metals at 33·31 to 1.

XXII. The sum is—

? (pounds) = 84 rupees
rupee 1 = 165 grains of silver
grains of silver 33·31 = 1 grain of gold
grains of gold 113·0016 = £1
100 = 92 charges deducted
100 = 98·5 discount on exchange

$$\frac{21 \quad 33 \qquad\qquad 23 \quad 19{\cdot}7}{84 \times 165 \times 1 \times 1 \times 92 \times 98{\cdot}5} = £3\ 6s.\ 7d.\text{—Ans.}$$
$$1 \times 33{\cdot}31 \times 113{\cdot}0016 \times 100$$
$$28{\cdot}28 \qquad 28$$
$$7{\cdot}0626 \qquad 4$$

If, instead of being silver rupees, the 84 rupees had been in good Indian bank notes, their value at 15·75 pence for a rupee would have been £5 5*s.* 3*d.*

ABSOLUTE PARS.

Ratio 15·6 to 1.	Ratio 33·31 to 1.
Rupees 10·71 = £1	Rupees 22·82 = £1
Pence 22·41 = 1 rupee	Pence 10·51 = 1 rupee

Fictitious rupee 40 per cent. premium.

Rupees 16·31 = £1
Pence 14·71 = 1 rupee

The price of Indian telegraph transfers to-day is 15·29/32 pence per rupee, or rupees, 15·08 to the pound. The weight

at par being 10·51 pence per rupee, the fictitious exchange rupee shows a premium of 51·51 per cent.

II. COMMERCE.

What is the cost in London, without freight and London charges, of one pound of tea at 12 annas per seer? 112 lbs. equal to 60 factory seers, charges in India at 8 per cent., the exchange at 1 and ½ per cent. discount, and the exchange rupee at 50 per cent. premium upon the silver rupee; the ratio between gold and silver at 33·31. One penny is the sign for ·4708 of a grain of gold.

XXIII. The sum is—

? (pence) = 1 lb. av. tea
lbs. 112 = 60 seers factory
seer 1 = 12 annas
annas 16 = 1 rupee
rupee 1 = 165 grains of silver
grains of silver 33·31 = 1 grain of gold
grain of gold ·47 = 1 penny
100 = 150 premium on silver rupee
100 = 108 with charges
100 = 98·5 exchange discount

$$\frac{1 \times 6 \times 3 \times 1 \times 33 \times 1 \times 1 \times 75 \times 27 \times 1{\cdot}97}{112 \times 1 \times 8 \times 1 \times 33{\cdot}31 \times {\cdot}4708 \times 100 \times 100 \times 100} = 6{\cdot}74 \text{ pence—Ans.}$$

III. FINANCE AND STOCKS.

At what amount per cent. of rupees in India must stock bought in London at £66 per £100 be sold for, the ratio between the metals being 33·31, the exchange rupee at 50 per cent. premium?

XXIV. The sum is—

Find the absolute par with a pound.

? (exchange rupees) = £1
£1 = 113·0016 grains of gold
gold 1 = 33·31 silver
grains of silver 165 = 1 rupee
premium 150 = 100

$$\frac{1 \times 113{\cdot}0016 \times 33{\cdot}31 \times 1 \times 2}{1 \times 1 \times 165 \times 3} = 15{\cdot}208 \text{ rupees.—Ans.}$$

Convert £100 into rupees, and £66 into rupees, to which add 1½ per cent. Divide the result of the latter by the result of the former to find the percentage rupees for 100 rupees.

$$£100 \times 15{\cdot}208 = 1520{\cdot}80$$
$$£66 \times 15{\cdot}208 + 1\tfrac{1}{2} \text{ per cent.} = 1018{\cdot}784$$

$$\frac{1018{\cdot}784 \times 100}{1520{\cdot}80} = 66{\cdot}99 \text{ rupees per 100 rupees.—Ans.}$$

IV. Automatic Gold for Inconvertible Paper based on Gold.

Inconvertible paper, based upon one of the precious metals, is, perhaps, the most rotten intermediary which a country can use. A vast number of different communities use this wretched intermediary in Europe and the New World for both their internal and international interchanges of things. Nowhere throughout the East, among its 852 millions of peoples, is this abortive currency known. On the sea-boards of the trading communities of the world a definite weight of gold, or a definite weight of silver, is the professed standard measure of value and equivalent in exchange to which each country has attached a sign for its chief money of account, as the pound, franc, and peso or dollar.

I. Travel.

What is the value in London of 617 pesos, consisting of the best notes of the Argentine Republic? The gold peso is 22·4012 grains of gold. Gold is at 157 per cent. premium there. Charges and risk amount to 4 per cent.

XXV. The sum is—

$$\text{? (pound)} = 617 \text{ paper pesos}$$
$$\text{peso } 1 = 22{\cdot}4012 \text{ grains of gold}$$
$$\text{grains of gold } 113{\cdot}0016 = 1 \text{ pound}$$
$$\text{premium } 257 = 100$$
$$100 = 96$$

$$\frac{\overset{5{\cdot}6003}{617} \times \overset{}{\not{22}{\cdot}\not{4}\not{0}\not{1}\not{2}} \times \overset{1}{1} \times \overset{12}{\not{1}\not{0}\not{0}} \times \overset{}{\not{9}\not{6}}}{\underset{3{\cdot}5313}{1 \times \not{1}\not{1}\not{3}{\cdot}\not{0}\not{0}\not{1}\not{6}} \times \underset{1}{257} \times \not{1}\not{0}\not{0}} = £45{\cdot}68.\text{—Ans.}$$

Another method is to get at the absolute par between the intermediaries on the ratio of the day, the fluctuating factor being the paper premium on gold, and upon par in the money of the country in which the exchange is made to deduct the charge for the conversion of the foreign intermediary.

XXVI. The sums are—

? (shilling) = 1 paper peso
gold peso 1 = 22·4012 grains of gold
grains of gold 5·65 = 1 shilling
premium 257 = 100

$$\frac{1 \times 22{\cdot}4012 \times 1 \times \overset{20}{\cancel{100}}}{1 \times \underset{1{\cdot}13}{\cancel{5{\cdot}65}} \times 257} = 1{\cdot}5427 \text{ shillings.—Ans.}$$

Then—

617 × 1·5427 − 4 per cent. = £45·688.—Ans.

Fixed Pars.	Absolute par, gold at 157 premium.
Pence 47·575 = 1 peso	Pence 18·512 = 1 peso
Pesos 5·044 = £1	Pesos 12·96 = £1

II. COMMERCE.

What is the cost in the Argentine Republic of one hectogram of tea, without charges in Argentina? 4·536 hectograms equivalent to 1 lb av., the price in London 10*d.* per lb., charges in London 3 per cent., paper premium on gold in Argentina 150 per cent.; exchange 4 per cent. against Argentina; a penny signifies ·4708 grain of gold and ·224 grain of gold 1 centesimo.

XXVII. The sum is—

? (centesimos) = 1 hectogram of tea
hectograms 4·536 = 1 lb. av.
lb. 1 = 10 pence
penny 1 = ·4708 grain of gold
grain of gold ·224 = 1 centesimo
100 = 250 premium in paper
100 = 103 London charges
100 = 104 exchange

$$\frac{1 \times 1 \times 10 \times \overset{\cdot1177}{\cancel{\cdot4708}} \times 1 \times \overset{1}{\cancel{250}} \times 103 \times \overset{13}{\cancel{104}}}{\underset{\cdot567}{\cancel{\cdot4536}} \times 1 \times 1 \times \cdot224 \times \underset{2}{\cancel{100}} \times \underset{5}{\cancel{250}} \times 100} = 12{\cdot}41 \text{ centesimos —Ans.}$$

The exchange of the intermediaries at the gold par of 5·044 pesos to the pound, instead of 12·96 pesos to the pound, would make the cost of the tea 4·96 centesimos, instead of 12·41 centesimos.

III. FINANCE AND STOCKS.

What amount of British money would 950,000 Argentine paper pesos command: 250 paper pesos equal to 100 gold pesos, the peso 22·4012 grains of gold, the pound 113·0016 grains of gold, the rate of exchange and charges 1 and ½ per cent. discount on the pounds?

XXVIII. The sum is—

? (pounds) = 950,000 paper pesos
paper peso 250 = 100 gold pesos
gold peso 1 = 29·40120 grains of gold
grains of gold 113·0016 = 1 pound
100 = 98·5 discount on exchange

$$\frac{19{\cdot}000 \times 1 \times 2{\cdot}80015 \times 19{\cdot}7}{1 \times 14{\cdot}12520 \times 1} = £74{,}200{\cdot}44 \text{—Ans.}$$

EFFECT OF A COINAGE CHARGE.

The operation of a coinage charge in the foreign and colonial exchanges can be exemplified in the currency of British India as it existed in 1872. The normal state of British Indian trade and financial obligations has for many years been a vast excess of exportation of agricultural, mineral, and manufactured products over the imports, necessitating a steady importation of the precious metals into the country. There have been periods during the past fifty years when silver has been exported to the West, but they have been rare, and of short duration. The coinage charge in British India was $2\frac{1}{5}$ per cent. This was a fixed charge adding to the sterling cost of the rupee, but not diminishing the rupee cost of the pound. Rupees received in the West would be procurable for remittance back to India, altering the rate of exchange by the charges upon the transaction.

What is the sterling cost of the rupee? The ratio between

the metals 15·64, the coinage charge 2 and $\frac{1}{5}$ per cent., the rupee 165 grains of silver, and ·4708 of a grain of gold a penny.

XXIX. The sum is—

? (pence) = 1 rupee
rupee 1 = 165 grains of silver
silver 15·64 = 1 gold
grain of gold ·4708 = 1 penny
100 = 102·2

$$\frac{1 \times 165 \times 1 \times 1 \times 102{\cdot}2}{15{\cdot}64 \times {\cdot}4708 \times 20} = 22{\cdot}9 \text{ pence.—Ans.}$$

Without the coinage charge the sterling price of the rupee on the conditions given is 22·42 pence.

Cost with coinage.	Cost without coinage.
Pence = 22·9 rupee	Pence 22·42 = rupee
Rupee 10·47 = pound	Rupee 10·70 = pound

A few more instances for the traveller will be given, as these present a solution to the crux of the foreign and colonial exchanges of intermediaries.

VI.

EFFECTIVE GOLD FOR INCONVERTIBLE PAPER BASED ON GOLD.

TRAVEL I.

The premium on gold in Spain is, say, 98 per cent. The peseta and the franc indicate the same weight of pure gold, viz. 4·4803 grains. What is the absolute par of exchange in Paris on these factors for, say, 986 pesetas in paper? The weights being the same, it is a percentage sum.

XXX. The sum is—

? (gold francs) = 986 paper pesetas
98 per cent. paper pesetas 198 = 100 gold francs

$$\frac{986 \times 100}{198} = 497{\cdot}97 \text{ gold francs.—Ans.}$$

Fixed gold pars.	98 per cent. premium on gold.
Franc 1 = 1 peseta	French cents 49½ = 1 peseta
Peseta 1 = 1 franc	Spanish „ 198 = 1 franc

The standard money of account in the two Republics of the Argentine and Paraguay is a peso of 22·4012 grains of gold: the premium on gold in the Argentine Republic is 140 per cent.; in Paraguay it is 600 per cent. What is absolute par of exchange in the Argentine for 8600 Paraguay State paper notes?

XXXI. The sum is—

? (Argentine paper pesos) = 8600 Paraguay paper pesos
600 per cent. premium 700 = 100 „ gold „
Argentine gold pesos 100 = 240 Argentine paper „

$$\frac{8600 \times \not{1}\not{0}\not{0} \times \not{2}\not{4}\not{0}}{\not{7}\not{0}\not{0} \times \not{1}\not{0}\not{0}} = 2962{\cdot}85 \text{ paper pesos.—Ans.}$$

(12 over 1 and $\not{8}\not{0}$; $\not{1}\not{7}\not{8}$; 35)

Fixed gold pars.

Argentine peso 1 = 1 Paraguay peso
Paraguay „ 1 = 1 Argentine „

Gold at 140 premium in Argentine Republic.
„ 600 „ Paraguay „

Argentine paper cents 34·28 = 1 Paraguay paper peso
Paraguay paper peso 2·92 = 1 Argentine „ „

VII.

INCONVERTIBLE PAPER BASED UPON SILVER.

Until 1890, for the most part, Peru, Bolivia, Costa Rica, Ecuador, Salvador, United States of Columbia, Guatemala, Honduras, and Nicaragua, with a population of 13½ millions, had currencies consisting of inconvertible paper based upon silver. The standard of these countries was professedly either gold or silver, at the option of the payer, at the legislative ratio of 15·5 parts of silver to 1 part of gold. Since the heavy increase of the ratio of silver to 1 of gold, most of these countries have shifted the nominal basis of their inconvertible currency from silver to gold. The Peruvian weights are those of all the other countries except Bolivia. The weights are: the gold chief money of account, 22·40175 grains of gold. The silver in the coin of the same name, 347·2278 grains. The Bolivian new silver weight is 312·505046 grains of pure silver, and this

country has declared for and possesses, or is about to possess, an effective silver monetary system, making the second with Mexico, on the American Continent, which clings for the present to a silver standard.

Let us assume that one of these eight other countries possesses for its internal and international intermediary inconvertible paper based on silver.

VIII.

INCONVERTIBLE PAPER BASED ON SILVER FOR INCONVERTIBLE PAPER BASED ON GOLD.

TRAVEL I.

What amount of Argentine paper pesos at 140 per cent. premium on the gold peso would 1650 paper pesos command at 110 premium on the silver peso? Charge for the exchange 4 per cent. ratio between the metals 33·31. The gold peso 22·4017 grains of gold. The Columbian silver peso 347·2278 grains of silver.

XXXII. The sum is—

? (Argentine paper pesos) = 1650 paper peso on silver
silver peso 1 = 347·2278 grains of silver
grains of silver 33·31 = 1 grain of gold
grains of gold 22·4017 = 1 gold peso
Argentine premium 240 = 100
100 = 210 silver premium
100 = 96 discount or exchange

$$\frac{33 \quad 173{\cdot}6139 \qquad\qquad 1 \qquad\quad 4}{1 \times 33{\cdot}31 \times 22{\cdot}4017 \times \frac{\not{1}\not{\phi}\not{\phi}}{1} \times \frac{\not{1}\not{\phi}\not{\phi}}{1} \times \frac{\not{1}\not{\phi}\not{\phi}}{1}} = 644{\cdot}94 \text{ paper pesos on gold.}$$

[—Ans.

IX.

DIRECT AND INDIRECT EXCHANGES OF INTERMEDIARIES.

If a bill is bought at a discount upon fixed or absolute par of exchange of the day, it will appear in the buyer's chain at a premium equal to the discount, say discount of 2 and ½ per cent. 2 and ½ per cent. discount is equal to 2·56 per cent. premium; the chain in the buyer's sum would be 100 *v.* 102·56.

If a bill is sold at a discount upon a fixed or absolute par of exchange of the day, it would appear in the seller's chain as at

the full discount, say discount 2½ per cent.; the chain would be 100=97·5.

If a bill is bought at a premium on a fixed or absolute par of exchange, say 2 and ½ per cent., the buyer's link in the chain would be 100=102·5.

If a bill sold at a premium on a fixed or absolute par of exchange, say 2 and ½ per cent., an equivalent discount to the premium would appear on the seller's link, thus 100=97·44.

In Argentina and China the ratio between the metals may differ from that in London. Take 34·61 as the rate in Argentina and 31· in China. To bring these into the chain the gain in Argentina is 4·56 per cent., and the loss in China is 6·37 per cent. compared with London; the links to be introduced would be—

100 = 104·56
100 = 93·63

Indirect exchanges of intermediaries often yield a better result to the remitter than a direct exchange. By simultaneous purchases and sales in many different markets, or in a few different markets, this may be accomplished. It is desired to send a sum of money from the British Isles to India. The direct operation between London and Calcutta will be shown, and the indirect through the Argentine Republic and China will follow. Assume that the exchanges are for telegraph transfers. What will the pound yield in silver-cum-counter-charge rupees? The ratio between the metals, 33·31, the fictitious value of the silver rupee 50 per cent., the discount upon the sterling 2 and ½ per cent. The pound 113·0016 grains of gold. The rupee 165 grains of silver. Two and a half per cent. discount is equivalent to 2·56 per cent. premium to the buyer of the bill.

XXXIV. The sum is—

? (fictitious silver rupee) = £1
£1 = 113·0016 grains of gold
grain of gold 1 = 33·1 grains of silver
grains of silver 165 = 1 silver rupee
premium on silver 150 = 100
100 = 102·56

$$\frac{\not{£}1 \times 113{\cdot}0016 \times 33{\cdot}31 \times 1 \times \not{1}\not{0}\not{0} \times 102{\cdot}56}{1 \times 1 \times 165 \times 150 \times \not{1}\not{0}\not{0}} = 15{\cdot}60 \text{ fictitious rupees.—Ans.}$$

The absolute par is obtained by leaving out the discount on par paid for the fictitious rupee. The par, Indian price, is 15·208 rupees for one pound.

The following is an arbitrated sum of exchange with telegraph transfers between the British Isles and British India through the Argentine Republic and China, which embraces the world's present great diverse intermediaries, namely, automatic gold, automatic silver, silver-cum-counter-charge, and inconvertible paper based on gold. The paper price of gold in the Argentine is 140 per cent. premium. China's intermediary is automatic silver. A remitter in London pays for a telegraph transfer upon Rosario 2½ per cent. dis., equal to 2·56 premium to him for paper at 140 per cent. premium on gold; his agent in Rosario invests the proceeds at the same premium in a T.T. on China at 6 per cent. discount, equal to 6·37 per cent. premium: his agent in China invests the proceeds in a T.T. on Calcutta at 1 per cent. premium, equal to 1 per cent. discount. The ratio between gold and silver 33·31 the same in London, Rosario, Shanghai, and Calcutta. How does this circuitous remittance compare with the direct one?

XXXV. The sum is—

? (fictitious silver rupee) = £1
£1 = 113·0016 grains of gold
grain of gold 1 = 33·31 grains of silver
grains of silver 165 = 1 silver rupee
premium on silver 150 = 100
100 = 102·56 discount in London
paper premium in London 240 = 100
100 = 240 paper premium in Rosario
100 = 106·37 discount on Rosario
100 = 99 premium in Shanghai

$$\frac{1\times 113\cdot0016\times 33\cdot31\times 1\times 102\cdot56\times 53\cdot19\times 33}{0\times 1\times 165\times 55\times 75\times 1\times 1\times 1\times 25\times 25\times 100} = \begin{cases}16\cdot43 \text{ fictitious}\\ \text{rupees.}\\ \text{—Ans.}\end{cases}$$

The result of the circuitous course of exchange, compared with the direct, shows that there is a gain by the former over the latter of 5·32 per cent. By deducting the percentage premium from the percentage discounts, 5 per cent. is shown. The addi-

tional ·32 per cent. gain results from the treatment of the discounts as premium and the premium as a discount, together with the increased or decreased amount at each stage of the operation. The weight of silver for the weight of gold once stated in this operation, it was needless to introduce it into the sum, as also it is needless to have introduced the premium in paper on gold in the Argentine, the premium being taken in London and in Rosario at the same rate. The fifteen variable factors which could be introduced into a circuitous bill operation through countries using the four intermediaries embraced in the foregoing operation are for the three bills. Credit, 3 classes of. Usance, from sight to 6 months' sight, 3; local rates of discount, 3; altered ratio between gold and silver, 2; paper premium on gold, 2; fictitious value of silver, 2. It will be noticed that nine out of these variable factors would play their part in the exchange even though an effective metal monetary system on one metal existed in the four countries.

The absolute par of exchange in this arbitrated sum of exchanges is 15·208 rupees for one pound. The percentages for charges resulting from various causes upon this sum at various stages of the operations, added or deducted, brings out the same result as the chain rule sum, thus—

15·208 + 2·58 per cent. + 6·38 per cent. − 1 per cent. = 16·43 rupees.

To reach the absolute par there are three variable factors. X, variable rates between the metals. Y, variable bounty upon silver conferred by legislation. Z, variable inconvertible paper premium upon gold. Under X we are dealing with substances, weights, real and only money. In teaching it is all important that the naked weights of money should be pressed home upon the minds of the taught. The other two factors can be dealt with in the shape of premium or discount upon weights of money. Besides fixed and absolute pars there are percentage more or less charges upon such pars resulting from—different credit, different usance of bills, different local rates of discount, coinage charge, transmission of metal charge, and commission where an agent is employed. To these last we attach the sign ϕ.

Such a chain rule sum as that illustrated, but with all possible variations, might be presented thus :—

? (fictitious silver rupees) = £1
£1 = 113·0016 grains of gold
in London grain of gold 1 = 33·31 grains of silver X
grains of silver 165 = 1 rupee
Z Indian legislative premium 150 = 100
2½ per cent. discount in London 100 = 102·56 in Argentine ϕ
Z Argentine paper premium 240 = 100 in London
Z Argentine paper premium 100 = 238 in Argentine
X ratio of silver to gold 1·8 per cent. premium 33·31 = 100 = 101·8 in Argentine
discount in Argentine upon China 100 = 106·37 premium ϕ
1 per cent. premium in Shanghae on India 100 = 99 discount ϕ

With this instruction and examples every youth, before finishing scholastic education, should have perfect command over the forty-nine different currency exchanges at present existing in the world.

RATIOS OF SILVER TO 1 OF GOLD IN THE WORLD'S MINTAGES.

In 1870 the ratio of pure silver to 1 of pure gold between the chief money of account and the chief metal token—the token metal being of a different nature—in each monetary system was as follows :—

(g.) attached to the name of country indicates the gold system, (s.) the silver system, (d.) denotes the dual standard system : the meaning of this latter is that either metal in unlimited quantity is legal tender *at the option of the payer.*

Germany (g.) 13·95. Portugal (g.) 14·09. Brazil (g.) 14·22. Uruguay (d.) 14·40. Scandinavia (g.) 14·88. British Isles (g.) 14·29. British India (s.) 15·00. Russia (s.) 15·00. Egypt (g.) 15·00. Turkey (g.) 15·10. Austria (s.) 15·30. France (d.) 15.50. Italy (d.) 15·50. Belgium (d.) 15·50. Switzerland (d.) 15·50. Spain (d.) 15·50. Greece (d) 15·50. Argentina (d.) 15·50. Paraguay (d.) 15·50. Columbia (s.) 15·50. Bolivia (s.) 15·50. Peru (s.) 15·50. Ecuador (s.) 15·50. Venezuela (d.) 15·50. Most of the 8 if not all the central possessions of

America come under 15·50 (d.) ratio. Netherlands (g.) 15·60. Philippines (s.) 15·79. United States N.A. (d.) 16·00. Japan (d.) 16·17. Chili (d.) 16·39. Mexico (s.) 16·51.

The following changes have taken place or are being striven after, all of recent origin.

Russia has constructed a fresh gold rouble money of account of 7·7412 decigrams of pure gold, the old gold rouble being 11·6118 decigrams. This 7·7412 decigrams or 11·9465 grains of pure gold, compared with the silver rouble in which there is no change, 179·961 decigrams of pure silver, shows the ratio between the metals at 23·25 parts of silver to 1 of gold.

Japan has constructed a new gold yen money of account of 7·5 decigrams of pure gold, the old gold yen being 15 decigrams. The silver yen continues the same, viz. 242·607 decigrams of pure silver. This shows the ratio at 32·48 parts of silver to 1 of gold.

Chili has constructed, under the name condor, a new standard money of account of 5·4917 decigrams. The peso contained 13·7277 decigrams of pure gold. The unchanged silver peso contains 225 decigrams of pure silver. This shows the ratio of 40·97 parts of silver to 1 part of gold.

Austria has coined a new chief gold money of account, under the name crown, of 3·0487 decigrams of pure gold. There is no change in the silver gulden or florin, which remains at 111·1111 decigrams of pure silver. This shows a ratio of 36·44 parts of silver to 1 part of gold.

British India aims at a gold standard. A rupee to contain 4·8816 decigrams of pure gold in place of the old gold rupee of 7·1279 decigrams. The silver rupee to continue the same, 106·9182 decigrams of pure silver. This shows the ratio between the metals as 21·90 parts of silver to 1 part of gold.

Bolivia has constructed a new silver standard money of account, and coin. The boliviano of 202·5 decigrams of pure silver. No change has been made in the weight of gold indicated in 1870, viz. 14·5161 decigrams. This shows a ratio of 13·95 parts of silver to 1 part of gold.

Of the 40 countries mentioned or alluded to above, it will be noticed that in 1870 22 countries possessed or claimed the

double standard, 9 countries the gold standard, and 9 countries the silver standard.

I do not know of any country in the world now that professes to possess or expects to regain a double standard.

Chief Moneys of Account.—The trading world at the present time either possesses, or has set itself to possess, seventeen effective gold standard chief moneys of account and eight effective silver standard chief moneys of account.

Among the seventeen chief moneys of account there are fourteen confined to the use of fourteen governments. The French franc, 2·903225 decigrams or 4·480359 grains on issue from the mint, is under the same name the chief money of account in Belgium and Switzerland. Italy, lira; Spain, peseta; Greece, drachma; Bulgaria, leva; Servia, dinar; Roumania, leu; Venezuela, bolivar. These ten governments adopted the same weight of gold as their chief money. The Argentine peso, the mint issue weight of pure gold in which is 14·516129 decigrams, or 22·401743 grains of pure gold, is exactly five times the weight of the franc. This is the weight of the following government chief gold coins:—Peru, sol; Paraguay, peso; Hayti, gourde; Costa Rica, peso; and some other of the Central American Republics. British India, Burmah, Ceylon, and Mauritius at present have no effective standard. The British and Indian Governments aim at the possession of a gold standard for these countries in a rupee equivalent to 16 pence, to contain one-fifteenth part of the pure gold in the sovereign at mint issue weight.

Among the eight chief silver moneys of account which are used by Shanghae, Mexico, Philippines, Columbia, Bolivia, Siam, Persia, and Corea, the silver chief coin so largely current in many of the Central and South American Republics is five times the weight of the silver franc, being 225 decigrams or 347·2278 grains of pure silver on issue from the mints. The Mexican dollar of 244·4092 decigrams or 377·1809 grains of pure silver, the Japanese yen and British dollar of 242·6076 decigrams or 374·4000 grains of pure silver, are very largely the currency of parts of Asia and the islands of the Indian and Pacific Oceans.

CONCLUSION.

Every properly educated person should possess a theoretical and arithmetical knowledge of the world's present mechanism of the interchanges of things. This knowledge is the safe foundation on which to erect the science of money. In 1883, on the recommendation of the late Professor Stanley Jevons, I procured a copy of "Money" by the late Professor F. A. Walker. Jevons recommended the work as the best authority upon money. The perusal of it was a great disappointment to me. I consider the instruction in it springs from an entire misconception of what money is, and that it is the worst guide to the subject that has ever been written since Locke's time. Anything and everything which, under certain conditions, does the work of money he says is money—a fundamental error from which is born all the wild, impracticable schemes of currency which ceaselessly flow from uninstructed or disordered brains. In the early years of this decade, being convinced of the great importance of true definitions upon such a vastly important subject as money, I formulated, and have ever since most persistently held, that the absolutely correct definition of money is "The standard substance in the shape of bullion and coin appropriated to currency purposes." This little work most clearly and prominently shows that credit instruments, that is, from a book debt to a State bank-note, is not money; that no description of token is money; that a coinage charge, a counter charge, a premium on the standard substance conferred by inconvertible paper, are not money. It is conclusively shown that all money is currency, but that all currency is not money. I desire to indelibly fix this truth on mankind. As soon as I possessed this profound conviction I mentioned my definition to two professional economists, one in England, the other in Ireland. I could not forbear from telling them that in my humble judgment I did not think they would ever understand money, or teach it properly, till they accepted my definition. They neither of them could see it. I have been led to study, compare, and write upon Archbishop Whately's "Easy Lessons on Money Matters for the Use of Young People," produced in the forties of this century, and Professor Jevons' "Political Economy," a Science Primer edited by Professors Huxley, Roscoe, and Balfour Stewart in 1878. I consider the earlier writer the sounder of the two. The first authority makes money his first subject, the second his twelfth.

The insight into the science of money and its use to be met with in the completed work of the India Office Committee on British India's future standard currency, especially in the evidence and papers of Lord Rothschild, Messrs. Alfred de Rothschild, Robert Campbell, W. H. Holland, E. A. Hambro, and Sir John Muir, present a strong contrast to the comparative worthlessness of the work of the meetings on money and its functions which have preceded it. Of very vast and world-wide importance are the two documents to which Mr. Campbell's name is attached. These raise questions which have yet to be threshed out.

I. The reasons for 16 rupees to the pound instead of 15 to the pound should have the serious attention of British Indian statesmen.

II. The denunciation of borrowing for the purpose of securing the standard metal, in the light of past experience should prevent such a course anywhere in the future history of the world.

III. The fundamental principle of fair trade from which the question arises, whether or not exports from a country which confers upon them unnatural and unfair bounties should be burdened with an import duty equivalent to the bonus by all other countries to which they are sent?

Should British India's chief gold money of account be made 16 rupees to the pound, the tables herewith will be found useful by adding 6·6 per cent. to the rupee pars with the other 16 chief gold moneys of account and by deducting 6·25 per cent. on the pars of the 16 other chief gold moneys of account with British India.

These pages contain the foundation to topstone of my work upon the exchanges. They should gain the attention of all students of sociology. They also form an appropriate Christmas gift to any boy or girl whose interest is awakened as to what money is and how it does its work. May they help forward, and that soon, the appearance of a popular lecturer upon this vastly important subject of money.

I shall esteem it a favour if any discovery of error in the pamphlet is at once communicated to me.

Section IV.—I.

TABLE IX.

WEIGHTS OF THE WORLD'S PRESENT AND PROSPECTIVE GOLD AND SILVER COINS.

Table of weights of gold and silver coins on issue from the mints. These coins are, or should be, current in the World's present twenty-nine monetary systems. Col. I.—Pure gold or pure silver in 1000 parts of metal. Col. II.—Proportion of silver to 1 of gold between the weights of both indicated by one money of account under mintage regulations. Col. III.—Names of the coins. Col. IV. —Total weight and weight of pure gold (g.) and pure silver (s.) in decigrams. Col. V.—Total weight and weight of pure gold and pure silver in grains.

	Col. I.	Col. II.	Col. III.	Col. IV. Decigrams.		Col. V. Grains.	
				Total weight	Weight of pure metal	Total weight	Weight of pure metal
I.	875·0	15·0	Egyptian pound	g. 85·000	74·375	131·1749	114·7781
	900·0	—	10 piastres	s. 125·000	112·5000	192·9043	173·6139
II.	916·667	14·287	British pound	g. 79·881	73·224	123·2740	113·0016
	925·0	—	1 shilling	s. 56·552	52·310	87·2250	80·72937
III.	916·667	15·1	Turkish pound	g. 72·16	66·147	111·3598	102·0798
	830·0	—	20 piastres	s. 240·55	199·650	371·2313	308·1168
IV.	916·667	14·09	Portuguese 5-milreis ...	g. 88·675	81·285	136·8460	125·4425
	916·667	—	5 testoons	s. 125·000	114·583	192·9043	176·8284
V.	917·0	14·4	Uruguay 5-peso	g. 84·850	77·807	130·9435	120·0750
	900·0	15·5	1 peso	s. 250·000	225·000	385·2087	347·2278
VI.	916·667	14·3	Newfoundland 2-dollars ...	g. 33·280	30·507	51·35886	47·07895
	925·0	—	50 cents	s. 117·820	108·983	181·8234	168·1871
VII.	900·0	16·0	United States 5-dollars ...	g. 83·591	75·232	129·0000	116·09985
	900·0	—	1 dollar	s. 267·290	240·567	412·5000	371·2514
VIII.	900·0	15·5	Argentine Republic 5-dols.	g. 80·645	72·5805	124·5415	112·00875
	900·0	—	1 dollar or peso ...	s. 250·000	225·000	385·2087	347·2278
IX.	—	—	Cuba	—	13·933	—	21·5019
X.	900·0	16·39	Chili 5-peso	g. 76·265	68·639	117·6941	105·9253
	900·0	—	1 condor	g. 5·991035	5·49178	9·245578	8·4751138
	900·0	—	1 peso	s. 250·000	225·000	385·2087	347·2278
XI.	916·667	14·22	Brazil 10-milreis	g. 89·648	82·178	138·34793	126·81957
	916·667	—	2 milreis	s. 255·000	233·750	393·5249	360·7311
XII.	983·0	15·6	Netherlands 10-guilders ...	g. 67·20	60·48	102·6682	93·3348
	945·0	—	1 guilder or florin ...	s. 100·000	94·500	154·3235	145·8357
XIII.	900·0	14·88	Danish 20-crowns	g. 89·606	80·645	138·2831	124·45412
	800·0	—	2 crowns	s. 150·000	120·000	231·4852	185·1882
XIV.	900·0	13·95	German 20-marks	g. 79·65	71·6846	122·917896	110·626801
	900·0	—	1 mark	s. 55·555	50·000	85·7359	77·1617
XV.	900·0	15·5	French 20-francs	g. 64·516	58·065	99·56334	89·60701
	900·0	—	1 franc	s. 50·000	45·000	77·0417	69·4455
XVI.	A weight	No coin	Shanghae tael	s. —	334·6254	—	516·40584
XVII.	900·0	—	Trade dollar	s. 272·156	244·940	420·0000	378·0000
XVIII.	902·778	16·0	Mexican dollar	s. 270·73	244·40918	417·7847	377·18098
	875·0	—	16 pesos	g. 270·643	236·813	417·6657	365·45753
XIX.	945·0	—	Java dollar or 2½ guilders.	s. 250	236·25	385·8087	364·58925
XX.	900·0	16·173	Japan 1-yen	s. 269·564	242·607	416·0000	374·4000
	—	—	5 yens	g. 83·3335	75·000	128·60317	115·74262
	900·0	—	1 yen	g. 8·3333	7·5	12·86029	11·57426
XXI.	900·0	15·79	Philippine dollar	s. 259·600	233·64	400·62531	360·5628
	875.0	—	1 peso	g. 16·915	14·796	26·0961	22·83705
XXII.	900·0	15·5	Peruvian sol	s. 250·000	225·000	385·2087	347·2278
	—	—	10 sols	g. 161·290	145·161	248·90837	224·01753
XXIII.	—	—	Tripoli mahbub	s. —	202·957	—	313·2000
XXIV.	868·056	15·0	Russian rouble	s. 199·957	179·961	308·5806	277·7221
	900·0	—	5 roubles	g. 64·510	58·059	99·5540	89·5986
	900·0	—	1 rouble	g. 8·60134	7·741206	13·2739	11·946505
XXV.	910·0	—	Siamese tical	s. 151·805	133·670	234·2711	206·2850
XXVI.	900·0	15·3	Austrian florin	s. 123·457	111·111	190·5231	171·4708
	900·0	—	8 florins	g. 64·516	58·065	99·563349	89·60701
	900·0	—	1 crown	g. 3·387534	3·04878	5·22776	4·704986
XXVII.	916·667	15·0	Indian rupee	s. 116·638	106·918	180·0000	165·0000
	916·667	—	15 rupees	g. 116·638	106·918	180·0000	165·0000
	916·667	—	1 rupee	g. 5·32537	4·88158	8·21831	7·53344
XXVIII.	900·0	13·37	Persian kran	s. 46·0034	41·4298	71·04	63·936
	990·0	—	1 thoman	g. 34·667	34·321	53·49032	52·96536
XXIX.	900·0	15·86	Tunis 1-piastre	s. 30·970	27·875	47·7939	43·0145
	900·0	—	50 piastres	g. 97·600	87·840	150·61973	135·55776
XXX.	9·16	—	Bolivia	s. 225·	202·5	347·2278	312·50504

II.

RULES AND EXAMPLES FOR FINDING THE EQUIVALENT PREMIUM TO A GIVEN DISCOUNT, AND VICE VERSÂ.

ALL charges for coinage and those connected with the transmission of standard metals, &c., and which cause the deviation from par in rates of exchange, assume a form of percentage which can be deducted from or added to the fixed and absolute pars of exchange for any sum of money, or may be taken upon the total sum exchanged.

In the present mode of quoting and working the exchanges, the charges are expressed in the quoted rates.

EQUIVALENT PREMIUM TO A GIVEN DISCOUNT.

I. Whenever a paper currency exists at a discount compared with the metal standard for which it should exchange at par, and it is desired to know the equivalent premium on the metal standard, an example of the method to find it is attached.

EXAMPLE I.—Say the paper currency is at a discount of 74·747 as compared with gold in the Argentine Republic, what is the percentage premium on the gold expressed in paper?

Here 100 is worth only 25·253.

$$\therefore \frac{100 \times 100}{25{\cdot}253} \text{ is worth 100,}$$

or 396 nearly is worth 100.

That is to say, a discount of 25·253 is equivalent to a premium of 296 nearly.

EQUIVALENT DISCOUNT TO A GIVEN PREMIUM.

EXAMPLE II.—Premium on gold in the Argentine Republic 296 per cent., at what percentage discount is the paper?

Here 100 is worth 396.

$$\therefore \frac{100 \times 100}{396} \text{ is worth 100.}$$

That is to say, a premium of 296 is equivalent to a discount of 74·747 nearly.

III.

FOR ADJUSTING EXCHANGE TO AN INVOICE OF GOODS WHEN EXCHANGE IS WORKED BY PREMIUM AND DISCOUNT ON ONE FACTOR.

Exchange is quoted in London on Melbourne at 3 per cent. discount (I.) for a 60 days' sight bill, or at 1 per cent. premium (II.) for a demand bill; what amount must be added to or deducted from the invoice to produce the amount of the invoice by the sale of the bill of exchange for the same?

RULE.—Multiply the invoice by 100, and divide the result by

(I.) 100 − the discount, if the exchange be at a discount.
(II.) 100 + the premium, if the exchange be at a premium.

The rate of discount on the first sum, or the rate of premium on the second sum, will bring the respective invoice amounts to the sums to be received from the purchaser of the bills, less the discount, or plus the premium.

TABLE X.

MULTIPLES FOR THE CONVERSION OF DECIGRAMS INTO GRAINS.

1	decigram =	1·54323563905	grain
2	„	3·08647127810	„
3	„	4·62970691715	„
4	„	·17294255620	„
5	„	7·71617819525	„
6	„	9·25941383430	„
7	„	10·80264947335	„
8	„	12·34588511240	„
9	„	13·88912075145	„

MULTIPLES FOR THE CONVERSION OF A GRAIN INTO A DECIGRAM.

1	grain =	·6479891824009	decigram
2	„	1·2959783648018	„
3	„	1·9439675472027	„
4	„	2·5919567296036	„
5	„	3·2399459120045	„
6	„	3·8879350944054	„
7	„	4·5359242768063	„
8	„	5·1839134592072	„
9	„	5·8319026416081	„

7000 grains equal 1 lb. avoirdupois.

TABLE XI.

CONVERSION OF FRACTIONS INTO DECIMALS.

$\frac{1}{64}$	..	..	..	..	..	..	·015625	$\frac{33}{64}$	..	..	..	..	..	..	·515625
	$\frac{1}{32}$	..	..	..	..	..	·03125		$\frac{17}{32}$	..	..	..	..	..	·53125
$\frac{3}{64}$	..	..	..	..	..	..	·046875	$\frac{35}{64}$	..	..	..	..	..	..	·546875
		$\frac{1}{16}$	..	..	..	..	·0625			$\frac{9}{16}$	..	..	..	..	·5625
$\frac{5}{64}$	..	..	..	..	..	..	·078125	$\frac{37}{64}$	..	..	..	..	..	..	·578125
	$\frac{3}{32}$	..	..	..	..	..	·09375		$\frac{19}{32}$	..	..	..	..	..	·59375
$\frac{7}{64}$	..	..	..	..	..	..	·109375	$\frac{39}{64}$	..	..	..	..	..	..	·609375
			$\frac{1}{8}$	..	..	..	·125					$\frac{5}{8}$	..	..	·625
$\frac{9}{64}$	..	..	..	..	..	..	·140625	$\frac{41}{64}$	..	..	..	..	..	..	·640625
	$\frac{5}{32}$	..	..	..	..	..	·15625		$\frac{21}{32}$	..	..	..	..	..	·65625
$\frac{11}{64}$	..	..	..	..	..	..	·171875	$\frac{43}{64}$	..	..	..	..	..	..	·671875
		$\frac{2}{16}$	..	..	..	..	·1875			$\frac{11}{16}$	..	..	..	..	·6875
$\frac{13}{64}$	..	..	..	..	..	..	·203125	$\frac{45}{64}$	..	..	..	..	..	..	·703125
	$\frac{7}{32}$	..	..	..	..	..	·21875		$\frac{23}{32}$	..	..	..	..	..	·71875
$\frac{15}{64}$	..	..	..	..	..	..	·234375	$\frac{47}{64}$	..	..	..	..	..	..	·734375
			..	$\frac{1}{4}$	..	..	·25						$\frac{3}{4}$	..	·75
$\frac{17}{64}$	..	..	..	..	..	..	·265625	$\frac{49}{64}$	..	..	..	..	..	..	·765625
	$\frac{9}{32}$	..	..	..	..	..	·28125		$\frac{25}{32}$	..	..	..	..	..	·78125
$\frac{19}{64}$	..	..	..	..	..	..	·296875	$\frac{51}{64}$	..	..	..	..	..	..	·796875
		$\frac{5}{16}$	..	..	..	..	·3125			$\frac{13}{16}$	..	..	..	..	·8125
$\frac{21}{64}$	..	..	..	..	..	..	·328125	$\frac{53}{64}$	..	..	..	..	..	..	·828125
	$\frac{11}{32}$	..	..	..	..	..	·34375		$\frac{27}{32}$	..	..	..	..	..	·84375
$\frac{23}{64}$	..	..	..	..	..	..	·359378	$\frac{55}{64}$	..	..	..	..	..	..	·859375
			$\frac{3}{8}$	..	..	..	·375					$\frac{7}{8}$	..	..	·875
$\frac{25}{64}$	..	..	..	..	..	..	·390625	$\frac{57}{64}$	..	..	..	..	..	..	·890625
	$\frac{13}{32}$	..	..	..	..	..	·40625		$\frac{29}{32}$	..	..	..	..	..	·90625
$\frac{27}{64}$	..	..	..	..	..	..	·421875	$\frac{59}{64}$	..	..	..	..	..	..	·921875
	$\frac{7}{16}$	..	..	..	..	..	·4375			$\frac{15}{16}$	..	..	..	..	·9375
$\frac{29}{64}$	..	..	..	..	..	..	·453125	$\frac{61}{64}$	..	..	..	..	..	..	·953125
	$\frac{15}{32}$	..	..	..	..	..	·46875		$\frac{31}{32}$	..	..	..	..	..	·96875
$\frac{31}{64}$	..	..	..	..	..	..	·484375	$\frac{63}{64}$	..	..	..	..	..	..	·984375
					$\frac{1}{2}$	..	·5								

FIXED GOLD AND SILVER PARS OF EXCHANGE.

It is absolutely requisite to work the exchanges of intermediaries in decimals of weights of standard substances or of monetary signs. To secure perfect accuracy in large transactions, work done in six decimal places is requisite. At present fractions are largely, if not exclusively, used. Take two illustrations from the British monetary system and use. The bases of the exchanges in the British Isles is the sovereign, 113·001605 grains of pure gold. The nearest fraction having a power of two for its denominator to ·001605 is $\frac{1}{512}$ths of one

grain, the decimal for which is ·0019531. The British monetary sign for the mint issue weight of pure gold in the French franc is 9·515688 pence. The nearest fraction having a power of two for its denominator to ·515688 is $\frac{33}{64}$ths, which is ·515625. Take the French monetary sign for the mint issue weight of the sovereign, 25f. 22·15328c.; the nearest fraction to ·15328 is $\frac{5}{32}$nds, which is ·15625.

TABLE XII.

FIXED GOLD PARS OF EXCHANGE.

No. 1.—EGYPTIAN PIASTRES FOR

	Piastres.		Piastres.
1 British pound	98·452	9. Japanese yen	10·084
2. Turkish pound	88·936	10. Dutch guilder	8·131
3. Portuguese milrei	21·858	11. Chilian condor	7·384
4. Uruguay peso	20·923	12. British Indian rupee	6·563
5. U.S.A. dollar	20·230	13. Scandinavian crown	5·421
6. Argentine peso	19·517	14. German mark	4·819
7. Brazilian milrei	11·049	15. Aus.-Hungarian crown	4·099
8. Russian rouble	10·408	16. French franc	3·903

No. 2.—BRITISH PENCE FOR

	Pence.		Pence.
1. Egyptian pound	243·768	9. Japanese yen	24·582
2. Turkish pound	216·803	10. Dutch guilder	19·823
3. Portuguese milrei	53·284	11. Chilian condor	17·999
4. Uruguay peso	51·004	12. British Indian rupee	16·000
5. U.S.A. dollar	49·316	13. Scandinavian crown	13·216
6. Argentine peso	47·578	14. German mark	11·747
7. Brazilian milrei	26·934	15. Aus.-Hungarian crown	9·992
8. Russian rouble	25·372	16. French franc	9·515

No. 3.—TURKISH PIASTRES FOR

	Piastres.		Piastres.
1. Egyptian pound	112·439	9. Japanese yen	11·338
2. British pound	110·699	10. Dutch guilder	9·143
3. Portuguese milrei	24·577	11. Chilian condor	8·302
4. Uruguay peso	23·525	12. British Indian rupee	7·380
5. U.S.A. dollar	22·746	13. Scandinavian crown	6·096
6. Argentine peso	21·945	14. German mark	5·418
7. Brazilian milrei	12·423	15. Aus.-Hungarian crown	4·609
8. Russian rouble	11·703	16. French franc	4·389

No. 4.—PORTUGUESE REIS FOR

	Reis.		Reis.
1. Egyptian pound	4574·93	9. Japanese yen	461·34
2. British pound	4504·12	10. Dutch guilder	372·02
3. Turkish pound	4068·79	11. Chilian condor	337·81
4. Uruguay peso	957·21	12. British Indian rupee	300·27
5. U.S.A. dollar	925·52	13. Scandinavian crown	248·03
6. Argentine peso	892·91	14. German mark	220·47
7. Brazilian milrei	505·49	15. Aus.-Hungarian crown	187·53
8. Russian rouble	476·17	16. French franc	178·58

No. 5.—URUGUAYAN CENTESIMOS FOR

	Centesimos.		Centesimos.
1. Egyptian pound	477·94	9. Japanese yen	48·19
2. British pound	470·54	10. Dutch guilder	38·86
3. Turkish pound	425·08	11. Chilian condor	35·29
4. Portuguese milrei	104·47	12. British Indian rupee	31·37
5. U.S.A. dollar	96·69	13. Scandinavian crown	25·91
6. Argentine peso	93·28	14. German mark	23·03
7. Brazilian milrei	52·81	15. Aus.-Hungarian crown	19·59
8. Russian rouble	49·74	16. French franc	18·65

No. 6.—UNITED STATES AMERICA CENTS FOR

	Cents.		Cents.
1. Egyptian pound	494·307	9. Japanese yen	49·846
2. British pound	486·656	10. Dutch guilder	40·196
3. Turkish pound	439·620	11. Chilian condor	36·50
4. Portuguese milrei	108·047	12. British Indian rupee	32·443
5. Uruguay peso	103·424	13. Scandinavian crown	26·798
6. Argentine peso	96·476	14. German mark	23·821
7. Brazilian milrei	54·616	15. Aus.-Hungarian crown	20·262
8. Russian rouble	51·449	16. French franc	19·295

No. 7.—ARGENTINE CENTAVOS FOR

	Centavos.		Centavos.
1. Egyptian pound	512·361	9. Japanese yen	51·666
2. British pound	504·431	10. Dutch guilder	41·664
3. Turkish pound	455·677	11. Chilian condor	37·832
4. Portuguese milrei	111·993	12. British Indian rupee	33·628
5. Uruguay peso	107·201	13. Scandinavian crown	27·777
6. U.S.A. dollar	103·652	14. German mark	24·691
7. Brazilian milrei	56·611	15. Aus.-Hungarian crown	21·002
8. Russian rouble	53·328	16. French franc	20·000

No. 8.—Brazilian Reis for

	Reis.		Reis.
1. Egyptian pound	9050·48	9. Japanese yen	912·65
2. British pound	8910·40	10. Dutch guilder	735·96
3. Turkish pound	8049·20	11. Chilian condor	668·279
4. Portuguese milrei	1978·27	12. British Indian rupee	594·02
5. Uruguay peso	1893·63	13. Scandinavian crown	490·67
6. U.S.A. dollar	1830·94	14. German mark	436·15
7. Argentine peso	1766·42	15. Aus.-Hungarian crown	370·99
8. Russian rouble	942·00	16. French franc	353·28

No. 9.—Russian Copecks for

	Copecks.		Copecks.
1. Egyptian pound	960·767	9. Japanese yen	96·884
2. British pound	945·896	10. Dutch guilder	78·127
3. Turkish pound	854·475	11. Chilian condor	70·942
4. Portuguese milrei	210·007	12. British Indian rupee	63·059
5. Uruguay peso	201·021	13. Scandinavian crown	52·088
6. U.S.A. dollar	194·366	14. German mark	46·300
7. Argentine peso	187·517	15. Aus.-Hungarian crown	39·383
8. Brazilian milrei	106·156	16. French franc	37·503

No. 10.—Japanese Sens for

	Sens.		Sens.
1. Egyptian pound	991·666	9. Russian rouble	103·216
2. British pound	976·317	10. Dutch guilder	80·640
3. Turkish pound	881·955	11. Chilian condor	73·223
4. Portuguese milrei	216·761	12. British Indian rupee	65·087
5. Uruguay peso	207·486	13. Scandinavian crown	53·763
6. U.S.A. dollar	200·617	14. German mark	47·789
7. Argentine peso	193·548	15. Aus.-Hungarian crown	40·650
8. Brazilian milrei	109·570	16. French franc	38·709

No. 11.—Dutch Cents for

	Cents.		Cents.
1. Egyptian pound	1229·745	9. Russian rouble	127·996
2. British pound	1210·711	10. Japanese yen	124·008
3. Turkish pound	1093·695	11. Chilian condor	90·803
4. Portuguese milrei	268·801	12. British Indian rupee	80·714
5. Uruguay peso	257·299	13. Scandinavian crown	66·670
6. U.S.A. dollar	248·781	14. German mark	59·262
7. Argentine peso	240·015	15. Aus.-Hungarian crown	50·409
8. Brazilian milrei	135·876	16. French franc	48·003

No. 12.—CHILIAN CENTAVOS FOR

	Centavos.		Centavos.
1. Egyptian pound	1354·296	9. Russian rouble	140·959
2. British pound	1333·334	10. Japanese yen	136·567
3. Turkish pound	1204·466	11. Dutch guilder	110·128
4. Portuguese milrei	296·025	12. British Indian rupee	88·888
5. Uruguay peso	283·359	13. Scandinavian crown	73·423
6. U.S.A. dollar	273·978	14. German mark	65·265
7. Argentine peso	264·324	15. Aus.-Hungarian crown	55·515
8. Brazilian milrei	149·638	16. French franc	52·865

No. 13.—BRITISH INDIAN RUPEES AND ANNAS FOR

	Rupees.		Rupees.
1. Egyptian pound	15·23582	10. Japanese yen	1·536385
2. British pound	15·	11. Dutch guilder	1·238941
3. Turkish pound	13·55024	12. Chilian condor	1·124999
4. Portuguese milrei	3·33028		Annas.
5. Uruguay peso	3·187793	13. Scandinavian crown	13·216
6. U.S.A. dollar	3·082257	14. German mark	11·747
7. Argentine peso	2·973649	15. Aus.-Hungarian crn.	10·022
8. Brazilian milrei	1·683426	16. French franc	9·515
9. Russian rouble	1·585797		

No. 14.—SCANDINAVIAN CROWNS AND ORES FOR

	Crowns.		Crowns.
1. Egyptian pound	18·445	10. Japanese yen	1·86
2. British pound	18·15951	11. Dutch guilder	1·499904
3. Turkish pound	16·40437	12. Chilian condor	1·361962
4. Portuguese milrei	4·031757	13. British Indian rupee	1·210634
5. Uruguay peso	3·85925		Ores.
6. U.S.A. dollar	3·731485	14. German mark	88·8887
7. Argentine peso	3·6	15. Aus.-Hungarian crn.	75·6097
8. Brazilian milrei	2·038012	16. French franc	72·0000
9. Russian rouble	1·919819		

No. 15.—GERMAN MARKS AND PFENNIGS FOR

	Marks.		Marks.
1. Egyptian pound	20·75066	10. Japanese yen	2·092503
2. British pound	20·42948	11. Dutch guilder	1·687395
3. Turkish pound	18·45495	12. Chilian condor	1·532210
4. Portuguese milrei	4·535733	13. British Indian rupee	1·361965
5. Uruguay peso	4·341662	14. Scandinavian crown	1·125002
6. U.S.A. dollar	4·197927		Pfennigs.
7. Argentine peso	4·050006	15. Aus.-Hungarian crn.	85·06111
8. Brazilian milrei	2·292767	16. French franc	81·00012
9. Russian rouble	2·159800		

No. 16.—AUSTRIA-HUNGARIAN CROWNS AND HELLERS FOR

	Crowns.
1. Egyptian pound	24·395
2. British pound	24·01741
3. Turkish pound	21·69611
4. Portuguese milrei	5·332323
5. Uruguay peso	5·104169
6. U.S.A. dollar	4·935189
7. Argentine peso	4·761290
8. Brazilian milrei	2·695436
9. Russian rouble	2·539116
10. Japanese yen	2·46
11. Dutch guilder	1·983744
12. Chilian condor	1·801305
13. British Indian rupee	1·601161
14. Scandinavian crown	1·322581
15. German mark	1·175625
	Hellers.
16. French franc	95·22581

No. 17.—FRENCH FRANCS FOR

	Francs.
1. Egyptian pound	25·61806
2. British pound	25·22154
3. Turkish pound	22·78385
4. Portuguese milrei	5·599662
5. Uruguay peso	5·360069
6. U.S.A. dollar	5·182618
7. Argentine peso	5·
8. Brazilian milrei	2·830573
9. Russian rouble	2·666415
10. Japanese yen	2·583333
11. Dutch guilder	2·0832
12. Chilian condor	1·891614
13. British Indian rupee	1·684136
14. Scandinavian crown	1·388889
15. German mark	1·234566
16. Aus.-Hungarian crown	1·050136

FIXED SILVER PARS OF EXCHANGE.

No. 1.—SHANGHAE CASH FOR

	Cash.
1. Mexican peso	730·39
2. Japanese yen	725·01
3. Javanese rixdollar	706·01
4. Philippine dollar	698·21
5. Columbian sol	672·39
6. Bolivian boliviano	605·15
7. Russian rouble	537·80
8. Siamese tical	438·23
9. Austrian florin	332·04
10. British Indian rupee	319·51
11. Persian kran	123·81

No. 2.—MEXICAN CENTAVOS FOR

	Centavos.
1. Shanghae tael	136·81
2. Japanese yen	99·26
3. Javanese rixdollar	96·66
4. Philippine dollar	95·59
5. Columbian sol	92·06
6. Bolivian boliviano	82·85
7. Russian rouble	73·63
8. Siamese tical	60·00
9. Austrian florin	45·46
10. British Indian rupee	43·74
11. Persian kran	16·95

No. 3.—JAPANESE SENS FOR

	Sens.		Sens.
1. Shanghae tael	137·92	7. Russian rouble	74·17
2. Mexican peso	100·74	8. Siamese tical	60·45
3. Javanese rixdollar	97·38	9. Austrian florin	45·80
4. Philippine dollar	96·30	10. British Indian rupee	44·07
5. Columbian sol	92·74	11. Persian kran	17·07
6. Bolivian boliviano	83 46		

No. 4.—JAVANESE CENTS FOR

	Cents.		Cents.
1. Shanghae tael	141·64	7. Russian rouble	76·17
2. Mexican peso	103·45	8. Siamese tical	62·07
3. Japanese yen	102·69	9. Austrian florin	47·03
4. Philippine dollar	98·89	10. British Indian rupee	45·25
5. Columbian sol	95·23	11. Persian kran	17·53
6. Bolivian boliviano	85·71		

No. 5.—PHILIPPINE CENTAVOS FOR

	Centavos.		Centavos.
1. Shanghae tael	143·22	7. Russian rouble	77·02
2. Mexican peso	104·61	8. Siamese tical	62·76
3. Japanese yen	103·84	9. Austrian florin	47·55
4. Javanese rixdollar	101·11	10. British Indian rupee	45·76
5. Columbian sol	96·30	11. Persian kran	17·73
6. Bolivian boliviano	86·67		

No. 6.—COLUMBIAN CENTESIMOS FOR

	Centesimos.		Centesimos.
1. Shanghae tael	148·72	7. Russian rouble	79·98
2. Mexican peso	108·62	8. Siamese tical	65·17
3. Japanese yen	107·82	9. Austrian florin	49·38
4. Javanese rixdollar	105·00	10. British Indian rupee	47·52
5. Philippine dollar	103·84	11. Persian kran	18·41
6. Bolivian boliviano	90·00		

No. 7.—BOLIVIAN CENTESIMOS FOR

	Centesimos.		Centesimos.
1. Shanghae tael	165·24	7. Russian rouble	88·87
2. Mexican peso	120·69	8. Siamese tical	72·42
3. Japanese yen	119·80	9. Austrian florin	54·87
4. Javanese rixdollar	116·66	10. British Indian rupee	52·80
5. Philippine dollar	115·38	11. Persian kran	20·46
6. Columbian sol	111·11		

No. 8.—Russian Copecks for

	Copecks.		Copecks.
1. Shanghae tael	185·94	7. Bolivian boliviano	112·52
2. Mexican peso	135·81	8. Siamese tical	81·49
3. Japanese yen	134·81	9. Austrian florin	61·74
4. Javanese rixdollar	131·28	10. British Indian rupee	59·41
5. Philippine dollar	129·83	11. Persian kran	23·02
6. Columbian sol	125·03		

No. 9.—Siamese Ticals and Phai-nungs for

	Ticals.		Ticals.
1. Shanghae tael	2·2818	7. Bolivian boliviano	1·3809
2. Mexican peso	1·6666	8. Russian rouble	1·2272
3. Japanese yen	1·6543		Shahis.
4. Javanese rixdollar	1·6110	9. Austrian florin	15·1536
5. Philippine dollar	1·5932	10. British Indian rupee	14·5818
6. Columbian sol	1·5343	11. Persian kran	5·7032

No. 10.—Austrian Florins and Kreutzers for

	Florins.		Florins.
1. Shanghae tael	3·0116	7. Bolivian boliviano	1·8225
2. Mexican peso	2·1996	8. Russian rouble	1·6196
3. Japanese yen	2·1334	9. Siamese tical	1·3198
4. Javanese rixdollar	2·1262		Kreutzers.
5. Philippine dollar	2·1027	10. British Indian rupee	96·226
6. Columbian sol	2·025	11. Persian kran	37·286

No. 11.—British Indian Rupees and Annas for

	Rupees.		Rupees.
1. Shanghae tael	3·1297	7. Bolivian boliviano	1·8939
2. Mexican peso	2·2859	8. Russian rouble	1·6831
3. Japanese yen	2·2691	9. Siamese tical	1·3715
4. Javanese rixdollar	2·2096	10. Austrian florin	1·0392
5. Philippine dollar	2·1852		Annas.
6. Columbian sol	2·1044	11. Persian kran	6·1998

No. 12.—Persian Krans for

	Krans.		Krans.
1. Shanghae tael	8·0769	7. Bolivian boliviano	4·8878
2. Mexican peso	5·8993	8. Russian rouble	4·3437
3. Japanese yen	5·8588	9. Siamese tical	3·5399
4. Javanese rixdollar	5·7024	10. Austrian florin	2·6816
5. Philippine dollar	5·6394	11. British Indian rupee	2·5807
6. Columbian sol	5·4308		

CONSTANTS TO DETERMINE THE MONETARY SIGNS FOR THE GOLD EQUIVALENT TO SILVER, AND THE SILVER EQUIVALENT TO GOLD BY THE APPLICATION TO THEM OF THE RATIO OF THE DAY BETWEEN THE METALS.

The following 204 gold monetary signs for the world's chief standard silver moneys of account are obtained by dividing the mint issue weight of pure silver in each chief silver standard money of account by the mint issue weight of pure gold in each chief gold standard money of account. The result divided by the ratio of the day gives the absolute par between a gold and a silver monetary system, or, in other words, determines the equivalent in gold for the silver at the ratio of the day.

The 204 silver monetary signs for the world's chief gold standard moneys of account are obtained by dividing the mint issue weight of pure gold in each chief gold standard money of account by the mint issue weight of pure silver in each chief silver standard money of account. The result multiplied by the ratio of the day gives the absolute par between a silver and a gold monetary system, or in other words, determines the equivalent in silver for the gold at the ratio of the day.

As an example :—It is desired to know the equivalent in France to a Mexican dollar at the ratio of thirty-four parts of silver to one part of gold. In Table XIII. page 83 under French centime and against Mexico 8418·5 will be found.

The sum is—

8418·5 centimes ÷ 34 ratio = centimes 247 : Ans.

Check this by the unit of weight system. Divide the weight of the Mexican peso by the ratio, and multiply the result by the French monetary sign for one decigram of gold.

The sum is—

244·4091 weight ÷ 34 ratio × 34·4444 centimes = 247 centimes, or Frs. 2·47 c. : Ans.

As an example :—It is desired to know the Shanghae equivalent to the German mark at thirty-four parts of silver to one

part of gold. In Table XIV. under Shanghae tael and against Germany ·01071 will be found.

The sum is—

·01071 tael or 10·71 cash × 34 ratio = 364·1 cash: Ans.

Check this by the unit of weight system. Multiply the weight of the mark by thirty-four, and that by the Shanghae monetary sign for one decigram.

The sum is—

3·584 weight × 34 ratio × 2·99 cash = 364·13 cash: Ans.

204 GOLD MONETARY SIGNS BEING PARS BETWEEN THE WORLD'S GOLD AND SILVER INTERMEDIARIES AT ONE PART OF GOLD FOR ONE PART OF SILVER.

TABLE XIII.

		I. Egyptian piastres.	II. British pence.	III. Turkish piastres.
1	Shanghai tael	449·91	1096·78	505·88
2	Mexican dollar	328·62	801·08	369·50
3	Japanese yen	326·20	795·17	366·77
4	Javanese rix-dollar	317·65	774·34	357·16
5	Philippine dollar	314·14	765·78	353·21
6	Columbian sol	302·52	737·46	340·15
7	Bolivian boliviano	272·27	663·72	306·14
8	Russian rouble	241·96	589·84	272·06
9	Siamese tical	197·17	480·65	221·70
10	Austrian crown	149·40	364·18	167·98
11	British Indian rupee	143·75	350·44	161·64
12	Persian kran	55·70	135·79	62·63

	IV. Portuguese reis.	V. Uruguay centesimos.	VI. United States cents.	VII. Argentine centavos.	VIII. Brazilian reis.	IX. Russian copecks.	X. Japanese sens.
1	20,583	2150·3	2223·9	2305·2	40,719	4322·6	4461·7
2	15,034	1570·6	1624·4	1683·8	29,741	3157·2	3258·8
3	14,923	1559·0	1612·4	1671·3	29,522	3133·9	3234·8
4	14,532	1518·2	1570·1	1627·5	28,749	3051·8	3150·0
5	14,371	1501·4	1552·8	1609·5	28,431	3018·1	3115·2
6	13,840	1445·9	1495·4	1550·0	27,380	2906·5	3000·0
7	12,456	1301·3	1345·8	1395·0	24,642	2615·9	2700·0
8	11,070	1156·4	1196·0	1239·7	21,899	2324·7	2399·5
9	9,020	942·4	974·6	1010·2	17,845	1894·4	1955·3
10	6,835	714·0	738·5	765·4	13,521	1435·3	1481·5
11	6,577	687·1	710·6	736·5	13,011	1381·1	1425·6
12	2.548	266·2	275·3	285·4	5,041	535·2	552·4

	XI. Dutch cents.	XII. Chilian centavos.	XIII. British Indian annas.	XIV. Scandinavian ores.	XV. German pfennigs.	XVI. Austria-Hungarian hellers.	XVII. French centimes.
1	5532·8	6093·2	1096·78	8298·7	9336·1	10,975·7	11,526·0
2	4041·2	4450·4	801·08	6061·3	6819·0	8,016·6	8,418·5
3	4011·4	4417·6	795·17	6016·7	6768·8	7,957·5	8,356·5
4	3906·3	4301·9	774·34	5859·0	6591·4	7,749·0	8,137·5
5	3863·1	4254·4	765·78	5794·3	6518·6	7,663·4	8,047·6
6	3720·2	4097·0	737·46	5580·0	6277 5	7,380·0	7,750·0
7	3348·2	3687·3	663·72	5022·0	5649·8	6,642·0	6,975·0
8	2975·5	3276·9	589·84	4463·0	5020·9	5,902·7	6,198·6
9	2424·7	2670·2	480·65	3636·8	4091·4	4,809·9	5,051·1
10	1837·1	2023·2	364·18	2755·5	3100·0	3,644·4	3,827·2
11	1767·8	1946·9	350·437	2651·5	2983·0	3,506·9	3,682·7
12	685·0	754·4	135·79	1027·5	1155·9	1 358·9	1.427·0

TABLE XIV.

204 SILVER MONETARY SIGNS BEING PARS BETWEEN THE WORLD'S SILVER AND GOLD INTERMEDIARIES AT ONE PART OF SILVER TO ONE PART OF GOLD.

			I. Shanghae tael.	II. Mexican peso.	III. Japanese yen.	IV. Javanese rix-dollar	V. Philippine dollar.	VI. Columbian peso.	VII. Bolivian bolimano.	VIII. Russian rouble.	IX. Siamese tical.	X. Austrian florin.	XI. British Indian rupee.	XII. Persian kran.
1	Egypt	pound	·22226	·30430	·30656	·31481	·31833	·33055	·36728	·41328	·50717	·66937	·69562	1·7952
2	British Isles ..	„	·21882	·29959	·30182	·30994	·31340	·32544	·36160	·40689	·49932	·65901	·68485	1·7674
3	Turkey	„	·19767	·27064	·27265	·27998	·28311	·29398	·32665	·36756	·45106	·59532	·61866	1·5966
4	Portugal	milrei	·04858	·06652	·06701	·06881	·06958	·07225	·08028	·09034	·11086	·14631	·15205	·39240
5	Uruguay	peso	·04650	·06366	·06414	·06587	·06660	·06916	·07685	·08647	·10612	·14005	·14555	·37561
6	United States, N.A.	dollar	·04496	·06156	·06202	·06369	·06440	·06687	·07430	·08361	·10260	·13542	·14073	·36317
7	Argentine Republic	peso	·04338	·05939	·05983	·06144	·06213	·06452	·07168	·08066	·09899	·13064	·13577	·35038
8	Brazil	milrei	·02456	·03362	·03387	·03478	·03517	·03652	·04058	·04566	·05604	·07396	·07686	·19835
9	Russia	rouble	·02313	·03167	·03191	·03277	·03313	·03441	·03823	·04302	·05279	·06967	·07240	·18685
10	Japan	yen	·02241	·03368	·03091	·03175	·03210	·03333	·03704	·04167	·05114	·06750	·07015	·18103
11	Netherlands ..	guilder	·01807	·02474	·02493	·02560	·02588	·02688	·02987	·03361	·04124	·05443	·05657	·14598
12	Chili	condor	·01641	·02247	·02264	·02325	·02351	·02441	·02712	·03052	·03745	·04943	·05136	·13256
13	British India ..	rupee	·01459	·01997	·02012	·02066	·02089	·02170	·02411	·02712	·03329	·04393	·04566	·11783
14	Scandinavia ..	crown	·01205	·01649	·01662	·01707	·01726	·01792	·01991	·02241	·02750	·03629	·03771	·09733
15	Germany	mark	·01071	·01466	·01477	·01517	·01534	·01593	·01770	·01992	·02444	·03226	·03352	·08651
16	Austria-Hungary ..	crown	·009111	·01247	·01257	·01290	·01305	·01355	·01505	·01694	·02079	·02744	·02851	·07359
17	France	franc	·008676	·01187	·01197	·01229	·01243	·01290	·01434	·01613	·01980	·02613	·02715	·07008

272 RATES OF EXCHANGE BETWEEN 17 BRONZE TOKENS IN EFFECTIVE GOLD CURRENCIES AND 132 RATES OF EXCHANGE BETWEEN 12 BRONZE TOKENS IN EFFECTIVE SILVER CURRENCIES.

Bronze token coins in effective gold and silver currencies are never intended to do their work at the cost value of them. The State obtains great profit by making them. Each bronze coin is a token for a definite weight of the pure standard metal in the chief money of account of each monetary system, as one penny the 240th part of a British pound sterling, one centime the 100th part of a French franc. Prices are quoted in pence, centimes, cents, copecks, centesimos, cash, pies, atts, &c. Everyone should be able to convert a price in bronze tokens of one country into the bronze tokens of all other countries the currencies of which consist of the same standard metal. On pages 74-80, automatic fixed gold and silver pars of exchange are given. The bronze tokens for each chief money of account dealt with in these pages are as follows:— I. Egyptian pound, 1000 ochr-el-guerches; II. British pound, 240 pence; III. Turkish pound, 4000 paras; IV. Portuguese milrei, 1000 reis; V. Uruguayan peso, 100 centesimos; VI. United States dollar, 100 cents; VII. Argentine centavo, 100 cents; VIII. Brazilian milrei, 1000 reis. IX. Russian rouble. 100 copecks; X. Japanese yen, 100 sens; XI. Dutch guilder, 100 cents; XII. Chilian condor, 100 centavos; XIII. British Indian rupee, 192 pies; XIV. Scandinavian crown, 100 ores; XV. German mark, 100 pfennigs; XVI. Austria-Hungarian crown, 100 hellers; XVII. French francs, 100 centimes.

I. Shanghae tael, 1000 cash; II. Mexican peso, 100 centavos: III. Japanese yen, 100 sen; IV. Javanese rix-dollar, 100 cents; V. Philippine dollar, 100 centavos; VI. Columbian sol, 100 centesimos; VII. Bolivian boliviano, 100 centesimos; VIII. Russian rouble, 100 copecks; IX. Siamese tical, 64 atts; X.

Austria-Hungarian florin, 100 kreutzers; XI. British Indian rupee, 192 pies; XII. Persian kran, 1000 dinars.

It is noticeable that of these 25 different bronze tokens there are 5, viz. Egyptian, Portuguese, Brazilian, Chinese, and Persian, of 1000 each, to make the chief money of account; there are 16, viz. Uruguayan, United States, Argentine, Russian, Japanese, Dutch, Chilian, Scandinavian, German, Austria-Hungarian, French, Mexican, Javanese, Philippinese, Columbian, and Bolivian, of 100 each, to make the chief money of account. For these 21 systems the tables on pages 74-80 serve to give the exchange of two bronze tokens. Let us take two examples of the use of these tables, one in which the divisor is 1000 and the other in which it is 100 bronze tokens.

I. What is the Egyptian equivalent to a cent of the United States? No. 1 of page 47 under Egyptian and against United States 20·230 piastres is found; there are 10 ochr-el-guerches to one piastre; by the removal of the decimal point one figure to the right 202·30 ochr-el-guerches is arrived at; this divided by 100 cents in the United States dollar shows that one U.S.A. cent is equivalent to 2·023 ochr-el-guerches.

II. What is the Dutch equivalent to a German pfennig? On page 76 under Dutch and against German mark 59·262 cent is found, the division of this by 100, i.e. the removal of the decimal two figures to the left, gives ·5926 cent as the equivalent to the German mark.

III. What is the German equivalent to a Dutch cent? On page 77 under German mark and against Dutch guilder 1·687395 mark is found; the removal of the decimal two figures to the right gives 168·739 pfennigs; this divided by 100 makes the Dutch cent equal to 1·687 pfennigs.

Check this last answer by the unit of weight system. The Dutch cent is the 100th part of a guilder, the guilder at mint issue weight is 6·048 decigrams of pure gold, the 100th of this is ·06048; this multiplied by the German monetary sign for one decigram gives the sign for one pfennig.

The sum is—

$$\cdot 06408 \times 27 \cdot 9 \text{ pfennigs} = 1 \cdot 687 \text{ pfennig.—Ans.}$$

Tables for Turkey, the British Isles, British India, and Siam are appended.

	XV. For the Turkish para.	XVI. For the British penny.	XVII. For the British Indian pie
I. Egypt, och-el-guerch ..	·223	4·102	·3431
II. British Isles, penny ..	·05420	—	·08333
III. Portugal, rei	1·1260	18·77	1·564
IV. Uruguay, centesimo ..	·1062	1·960	·1634
V. United States, cent ..	·1099	2·028	·1690
VI. Argentina, cent.. ..	·1139	2·102	·1751
VII. Brazil, rei	2·0123	37·130	3·093
VIII. Russia, copeck	·2136	3·941	·3286
IX. Japan, sen	·2205	4·068	·3390
X. Holland, cent	·2734	5·045	·4204
XI. Chile, centavo	·3011	5·555	·4630
XII. British India, pie ..	·6504	12·000	—
XIII. Scandinavia, ore ..	·4101	7·565	·6305
XIV. Germany, pfennig ..	·4613	8·512	·7093
XV. Austria-Hungary, heller	·5424	10·007	·8340
XVI. France, centime.. ..	·5696	10·509	·8770
Turkey, para		18·449	·1538

	XVIII. For the Siamese att.		XVIII. For the Siamese att.
I. Shanghae, cash ..	6·847	VII. Bolivia, centesimos	1·1315
II. Mexico, centavos..	·9375	VIII. Russia, copecks ..	1·2732
III. Japan, sens ..	·9445	IX. Austria, kreutzers	2·0622
IV. Java, cents ..	·9700	X. British India, pies	4·1145
V. Philippines, centavos	·9817	XI. Persia, dinars ..	55·306
VI. Columbia, centesimos	1·0183		

XIX.—SIXTEEN GOLD PARS WITH THE BRITISH SHILLING.

I. Egypt	4·9226	ochr-el-guerch.
II. Turkey	221·40	paras.
III. Portugal	225·20	reis
IV. Uruguay	23·527	centesimos.
V. United States	24·333	cents
VI. Argentina	25·221	centavos.
VII. Brazil	445·52	reis.
VIII. Russia	47·300	copecks.
IX. Japan	48·816	sens.
X. Holland	60·535	cents.
XI. Chili	66·666	centavos.
XII. British India	144·000	pies.
XIII. Scandinavia	90·797	ores.
XIV. Germany	102·147	pfennigs.
XV. Austria-Hungary ..	120·087	kreutzers.
XVI. France	126·107	centimes.

A shilling, containing 52·31 decigrams of pure silver on issue from the mint of the present value of 34 parts of silver to one part of gold or 5 pence, is a British token for the 20th part of a pound or 14·645 grains of pure gold. No more than 40 shillings are legal tender in one payment.

UNIVERSAL POSTAL UNION RATES IN 350 COUNTRIES AND ISLANDS.

Besides the 29 Union postal rates in the tables there are 26 rates attached to other countries in the Union. These rates will be given with the remaining countries in the Postal Union. In that which follows there will not be a repetition of the 30 countries embraced in the table.

Attached to those parts of the world which belong to or are under the protectorate of another power, the following letters will denote the country:—B. Great Britain, F. France, G. Germany, N. Holland, P. Portugal, U. United States N.A., D. Denmark, I. Italy, T. Turkey, S. Spain, J. Japan, Ge. Greece, V. Venezuela.

RATES FOR HALF-OUNCE LETTERS IN THE UNIVERSAL POSTAL UNION.

To places with (B.) attached, where not otherwise expressed, 2½ pence is understood. Where (F.) is attached, 25 centimes. Where (G.), 20 pfennigs. Where (N.), 12½ cents. Where (P.), not otherwise expressed, 50 reis. Where (D.), not otherwise expressed, 20 ores. Where (S.), 25 centimos. Where (J.), 10 sens. Where (V.), 25 centesimos.

Europe, Mediterranean Sea, and British Channel: Andorra (F.). Belgium, g. m. Bosnia and Herzegovina, g. 10 kreutzer. Bulgaria, g. Candia (Ge.), i.p.g. Cephalonia (Ge.), i.p.g. Channel Isles (B.), g. Corfu (Ge.), i.p.g. Corsica (I.), i.p.g. Cyclades (T.). Cyprus (B.), g. Denmark, g. m. Finland, g. Formentera (S.), i.p.g. Gibraltar (B.), g. Greece, i.p.g. Italy, i.p.g. m. Iviza (S.), i.p.g. Majorca (S.), i.p.g. Malta (B.), g. Minorca (S.), i.p.g. Montenegro, g. 10 soldi. Norway, g. 20 ores. Roumania, g. Samos (T.), g. Sardinia (I.), i.p.g. Servia, g. Sicily (I.), i.p.g. Spain, i.p.g. Sporades

(Ge.), i.p.g. Sweden, g. 20 ores. Switzerland, g. m. Zante (Ge.), i.p.g.

America, North: Canada (B.), g. **Central**: Belize, . British Honduras, g. 5 cents. Costa Rica, i.p.g. 5 centavos. Guatemala, i.p.s. 5 centavos. Labrador (B.), . Newfoundland (B.), 5 cents. Honduras (B), 5 cents. Mosquito, . Nicaragua, i.p.s. Salvador, i.p. **South**: Bolivia, s. 10 centavos. British Guiana, g. 5 cents. Dutch Guiana, g. 12½ cents. Ecuador, i.p.s. 5 centavos. French Guiana, g. New Granada, . Paraguay, i.p.g. 5 centavos. Peru, i.p.g. 10 centavos. Salvador, i.p.g. Venezuela, g. 25 centesimos.

Asia: Afghanistan, s. Aleppo (T.), s. Annam (F.), s. Arabia (T.), s. Armenia (T.), s. Asiatic Turkey, s. Bagdad, s. Beloochistan, s. Benghazi (T.), s. Bhutan, s. Burma (B.), s.c. Cambodia (F.), s. Chandernagore (F.), s. Chinese Turkestan, s. Cochin China (F.), s. British Kurdistan (T.), s. Goa (P.), g. 2 tangas. Kashmir, s. Kiao Chao Bay (G.), s. India and 45 Territorial Protectorates (B.), s.c. m. 2½ annas. Malay Peninsula, s. Mesopotamia (T.), s. Mongolia, s. Nepal, s. Oman, s. Pondichery (F.), s. Russia in Asia, s. Straits Settlements (B.), 8 cents. Turkestan, s. Syria (T.) Thibet, s. Tonquin (F.), s. French Siam, s. Yunnan, s.

Africa: Abyssinia, s. Angola (P.), g. Algerian Sahara (F.), g. Algeria (F.), g. Ashantee, s. Assinie (F.), g. Bagerim (F.), g. Basutoland (B.), g. Becuanaland (B.), g. British Caribo (B.). British East Africa, s. 2½ annas. British Central Africa, g. Cameroons (G.), g. Cape of Good Hope (B.), g. Congo and Gaboon (G., F.). Congo Free State, g. Dahomey (F.), g. Damaraland (G.), g. Egyptian Sudan, s. Futa Jallon (F.), g. German East Africa, g. Gambia (B.), g. Gold Coast (B.), g. Great Namaqualand (G.), g. Guinea (P.), g. Guinea (F.). German South-West Africa, g. Grand Bassam (F.), g. Inhambane (P.). Ivory Coast (F.), g. Lake Nyassa (B.). Kroo Country (F.), g. Lagos (B.), g. Laurenco Marques (P.). Liberia Rep., g. 5 cents. Mashonaland (B.). Matabeleland (B.). Morocco, s. Mozambique (P.), g. Natal (B.), g. Obok and Somali Coast (F.), g.

Orange River Free State, g. Pondoland (B.). Rhodesia (B.), g. Royal Niger Co. (B.), g. Rivieres de Lud (F.), g. Sahara Region (F.), g. Senegal (F.), g. Shiré (B.). Somali Coast (B.), g. South African Republic (B.), g. South-East Africa, Delagoa Bay (P.), g. Togo Land (G.), g. Tripoli (T.), g. Tunis (F.), g. Zululand (B.), g. Zambezia (P.). Zanzibar and East Africa (B.), s. 2½ annas.

Australasia (B.), g., embracing Victoria, m., New South Wales, m., Queensland, South Australia, West Australia, New Zealand and Tasmania, 2½ pence.

Atlantic Ocean, Islands in: Annobon (S.). Antigua (B.), g. Aruba (N.), g. Ascension (B.), g. Azores (P.), i.p.g. Bahama Islands (B.), g. Banana Isles (B.). Barbadoes (B.), g. Barbuda (B.). Bermuda (B.), g. Bolama (P.). Bonaire (N.), g. Carolines (S.). Canary Islands (S.), i.p.g. Cape Verd Islands (P.), i.p.g. Caicos Islands (B.). Curacao (N.), g. Cayman Islands (B.). Coche (V.). Cuagua (V.), i.p. Cuba (N.A.), i.p. Danish Iceland, g. Danish Greenland, g. Deseada (F.), g. Dominica (B.), g. Dominican Republic, g. 5 centavos. Eustache (N.), g. Falkland Isles (B.), g. Færoe Islands (N.). Ferdinand Po (P.). Georgia. Grenada, (B.), g. Grenadines (B.). Guadelope (F.), g. Hebrides (B.). Hayti, 5 centavos. Isle de Los (B.). Jamaica (B.), g. Les Saintes (F.), g. Marie Galante (F.), g. Marganta (V.), i.p.g. Madeira (P.). Martinique (F.). Miquelon (F.), g. Montserrat (B.), g. Nevis (B.), g. New South Orkneys. Orkney Isles (B.). Pigeon (B.). Plantain Isles (B.). Porto Rico (N.A.), i.p.g. Prince's and St. Thomas' Islands (P.). Principe (P.). Redonda (B.). Saba (D.), i.p.g. San Domingo, rep. Sambrero (B.). St. Croix (D.). St. Bartholomew (F.), g. St. Christopher (B.). St. Helena (B.), g. St. John (D.), g. 5 cents. St. Lucia (B.), g. St. Martin (N.), g. St. Martin (F.), g. St. Pierre (F.). g. Shetland Isles (B.). South Georgia (B.). St. Thomé (P.). St. Vincent (B.), g. Tobago (B.), g. Tortola (B.). Tortuga (V.), g. Trinidad (B.), g. Tristan Da Cunha (B.), g. St. Thomas (D.), 5 cents. Turks Islands (B.). Turtle Isles (B.). Virgin Gorda (B.). Virgin Islands (B.).

Indian Ocean, Islands in: Aden (B.), s. Amirante Islands

(B.), s. Andaman Islands (B.), 2½ annas., s.c. Amsterdam (F.), s. Aroe Isles (N.). Ashmore Group (B.). Banca (N.), s. Bahrein Islands (B.), s. Billiton (N.), s. Borneo (N.), s. British Borneo (B.), s. 10 cents. of dollar. Canda Islands, s. Cargados Islands (B.), s. Celebes (N.). Ceylon (B.). s. 15 cents of rupee. Chagos Islands (B.), s. Christmas Island (B.), s. Comoro Islands (F.), s. Cosmoledo Islands (B.), s. Diu (P.). Domao (P.). Eagle Islands (B.), s. Guinea (N.). Guinea (F.). Guinea (P.). Java and Madura (N.), s. Kamaran (B.), s. Keeling Islands (B.), s. Kooria Mooria Isles (B.). Kerquelon (F.), s. Key Isles (N.). Labuæn (B.), s. 10 cents of dollar. Laccadive Islands (B.), s. Madagascar (F.), s. Maldive Islands (B.), s. Mauritius (B.), s.c. 18 cents of a rupee. Mayotte (F.), s. Molucca Archipelago (N.), s. Nicobar Islands (B.), s., 2½ annas. Nossi-Bé (F.), s. Oil Islands (B.), s. Perim (B.). Pulo Cambing (P.). Reunion (F.), s. Reau-Lingga Archipelago (N.), s. Roderiques (B.), s. Sarawak (B.). Seychelles Islands (B.), s. Socotra (B.), s., 2½ annas. Spice Isles (N.). Sunda Islands (N.), s. Timor (P.).

Pacific Ocean, Islands in: Austral (F.), s. Bismarck Archipelago (G.), s. Caroline Islands (B.). Chatham Islands (B.), g. Clipperton (F.), g. Ducie (B.), s. Dudoza (B.), s. Fanning (B.), s. Fiji Islands (B.), s. Formosa (J.), s. Gilbert Islands (B.), s. Gambier (F.), s. Hawaian Islands, chief Honolulu, s. Hervey or Cook's Islands, chief Raratonga (B.), s. Jarvis (B.), s. Kaiser Wilhelm's Land or N. Guinea (G.), s. Kermadec Islands (B.), g. Lagoon or Ellice Islands (B.), s. Ladrones or Mariame Islands (S.), s. Loyalty Archipelago (F.), s. Marshall Islands (G.), s. Manihiki Islands (B.), s. Marquesas Islands, s. Molucca Isles (N.), s. 12½ c. New Caledonia (F.), s. Norfolk (B.), s. New Hebrides (F.), s. Philippine Islands (U.), s. Phœnix Islands (B.), s. Society Islands, chief Tahiti (F.), s. Samoa or Navigators Islands, s. Solomon Islands (G.), s. Starbuck (B.), s. Sulu Islands (N.A.). Tongo or Friendly Islands, s. Union Group (B.), s.

ANSWERS TO EXERCISES.

THE ratio of silver to gold in these exercises is always 34 of the former to 1 of the latter.

1. 493·93 troy grains. 2. 152·805 grams. 3. 148 dollars 12·34 cents. 4. 1131 roubles 27 copecks. 5. ·976 piastre. 6. 2·38 pence. 7. 43·89 paras. 8. 44·65 reis. 9. 4·67 centimos. 10. 4·83 cents. 11. 5 centavos. 12. 88·33 reis. 13. 9·38 copecks. 14. 9·68 sens. 15. 12 cents. 16. 5·28 centavos. 17. 18 ores. 18. 20·25 pfennigs. 19. 9·996 kreutzers. 20. 21. 4·45 troy grains. 22. 23. 18,536·58 decigrams. 24. 228 taels 292 cash. 25. 1,999,090 decigrams. 26. 526 pesos 67 centavos. 27. 94·80 cash,—13·00 cents,—13·63 cents,—13·95 centavos,—15·54 centesimos,—6·97 phai-nungs,—15·22 shahis. 28. 334·62 dec. s., 9·985 dec. g. ratio 33·50. 29. 244·41 dec. s., 7·088 g. ratio 34·48. 30. 106·92 dec. s., 4·916 dec. g. ratio 21·74. 31. Bombay 4·88 dec., British Isles 4·916, 7·4 per mille more in the British Isles. 32. India's currency ratio 21·9, world's present ratio 34, 55·25 per cent. 33. 25 centimes indicate ·7259 of a decigram, 45·61 per cent. 34. Basal gold 1·555 dec. $114\frac{1}{5}$ per cent. 35. Basal gold 1·451, 100 per cent. 36. Basal gold 1·742 dec., 140 per cent. 37. Basal gold 1·643 dec., 126·3 per cent. 38. Basal gold 1·374 dec., 89·3 per cent. 39. Basal silver 24·39 dec., $117\frac{3}{10}$ per cent. ·7173 dec. g. 40. Basal silver 20·41 dec., $80\frac{1}{5}$ per cent., ·6009 dec. g. 41. Basal silver 22·73 dec., $143\frac{9}{10}$ per cent., ·6685 dec. g. 42. Basal silver 25·00 dec., 121 per cent., ·7353 dec. g. 43. Basal silver 18·73 dec., 1·1 per cent., ·5508 dec. g.

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REPRINT

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MAY AND JUNE 1898.

British India's Future Standard Currency

BY

JOHN HENRY NORMAN.

EFFINGHAM WILSON, Royal Exchange, E.C.
STAMFORD'S, Cockspur Street, S.W.
G. P. PUTNAM'S SONS, New York.

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—

1898.

British India's Future Standard Currency.

THE Committee which has just had its first meeting to consider the momentous question of the future standard currency of 292 millions of people in India, Burma, Ceylon, and the Mauritius must have the best hopes of everyone that it may be guided to sound conclusions in the interests of the masses in the East as well as of those with whom they have dealings in other parts of the world.

There are erroneous anticipations and false views of the causes of facts which are to be found in the records of the procedures of the Royal Gold and Silver Commission of 1886, the Indian Currency Committee of 1893, and the recent Agricultural Commission. The most important of these have been pointed out. A few short tables which you will be good enough to publish may be of help at this time in the study afresh of that most important subject, the causes of the fluctuations of prices and the foreign and colonial exchanges. These tables are compiled from Messrs. Pixley & Abel's reliable annual statement of the monthly fluctuations in the price of bar silver per ounce or 444 troy grains of pure silver in London issued this year; and from the valuable statistical information kept at the India Office.

In 1873 the world's mints were closed against the unlimited reception of silver from the public. This was the death of such bimetallism as existed, for it killed the receptive side of it, though the distributive side still exists in some countries. In 1893 the mints were closed against the reception of silver from the public, and this was followed by the imposition of a 5 per cent. import duty upon silver in India. The object of these tables is to emphasise these periods in comparison with a previous period.

TABLE I.

London Prices of Silver.

Average of 10 Years ended in December	Price pence per ounce	Ratio of Silver to 1 of Gold	Percentage rise in the Silver price of Gold, on average of 30 Years, 15·54	Rupees per £	Pence per Rupee	Percentage fall in Gold price of Silver
1852	59·7750	15·78				
1862	61·46875	15·34	Av. 15·54	Av. 10·6	22·55	
1872	60·78125	15·50				
1882	54·13750	17·42	12·1	11·8	20·20	10·4
1892	45·79375	20·90	34·5	14·1	17·01	24·5
5 Years. 1897	30·55000	30·87	98·6	21·1	11·35	49·7

The following are the last six years' annual average prices:—

1892	39·8125	23·69	52·4	16·2	14·79	34·4
1893	35·6250	26·48	70·5	18·1	13·24	41·3
1894	28·9375	32·25	107·5	22·1	10·75	52·3
1895	29·8750	30·27	94·8	20·8	11·10	50·8
1896	30·7500	30·64	97·1	21·0	11·43	49·3
1897	27·5625	34·20	120·1	23·4	10·24	54·6

The highest price of silver was 62¾ pence in July 1859, and the lowest price was 23·75 pence in August and September 1897.

1859	62·7500	15·03	−3·3	10·3	10·9	+3·2
1897	23·7500	39·80	156·	27·2	8·79	61·0

TABLE II.

British India's Surplus Import of Gold and Silver—000 *omitted.*

10 Years ended in March	Gold XRs.	Silver XRs.	Annual ended in March	Gold XRs.	Silver XRs.
1853	9,607	18,677	1894	641	13,720
1863	34,149	79,662	1895	—4,974	6,329
1873	52,060	78,196	1896	2,526	6,582
1883	21,054	59,101	1897	2,291	5,856
1893	35,547	97,948	1898	4,900	12,870
5 Years ended March 1898	13,358	45,357			
55 Years ..	165,776	378,941			

The value of these 3,789,410,000 rupees at 36·27 parts of silver to 1 part of gold is £152,071,100. The world-wide value of them until 1873 would have been £356,046,000.

TABLE III.

Drafts and Telegraph Transfers sold by the Secretary of State for India in London upon Britsh India; Years ended in March—000 *omitted.*

	Silver XRs		£	Pence per Rupee	Rupees per £
9 Years to 1863	16,384	=	to 16,278	23·844	10·06
10 ,, 1873	77,976	,,	75,487	23·234	10·33
10 ,, 1883	159,797	,,	136,728	20·535	11·68
10 ,, 1893	204,740	,,	147,413	17·280	13·88
5 ,, 1898	119,050	,,	69,546	14·020	17·11
44 Years	577,947		445,452		

Annual.

	Silver XRs		£	Pence per Rupee	Rupees per £
1894	16,423	=	9,960	14·555	16·48
1895	28,884	=	15,771	13·104	18·31
1896	33,081	=	18,742	13·599	17·65
1897	25,941	=	15,623	14·454	16·60
1898	14,721	=	9,450	15·407	15·56

As a rough gauge of India's capabilities through her surplus export trade previous to the heavy rise in the silver price of gold, the above statistics for the 10 years ended in 1883 can be taken. The average rise in the price of gold for the 10 years is 12·1 per cent. India furnished the India Office in London by draft £136,728,000, or £13,672,000 per annum. Her imports of gold were XRs. 19,761,000, equivalent to £16,215,000 at, say, 20·2 pence per rupee. Her import of silver was XRs. 59,101,000 at, say, 20·2 pence per rupee, equal to £49,743,000. These surplus imports amounted to £65,958,000 in 10 years, or £6,595,800 per annum. This, with the Council bills, is £20,267,800 per annum during the 1883 10 years' period.

The world-wide value of silver measured by gold is to-day in the proportion of 36·27 parts of silver to 1 part of gold, or 9·66 pence per rupee, to which add, say, 6 per cent. for duty of 5 per cent. and 1 per cent. transmission charges, which makes the rupee equal to 10·24 pence. This, compared with the price of the fictitious exchange rupee, viz., 15·875 pence, shows a difference of 55 per cent. The result of this is that India's export trade in such articles as effective silver standard and other countries can supply is handicapped to the extent of 55 per cent. at the present time. The countries which can thus compete with India are Persia, Siam, the whole of the Far East, and the Isles of the Pacific, except Japan and Java, Mexico, Bolivia, and countries in South and Central America, the currencies in which consist of inconvertible paper at heavy discounts.

But the bonus conferred by an effective silver intermediary compared with a silver-cum-counter-charge intermediary is not quite fairly stated at 55 per cent. Let us

take three concrete cases for the sake of making a more accurate comparison. The present ratio of silver to gold is 35·67 to 1. Sixteen pence per rupee establishes a ratio of 21·90 to 1. Tea of equivalent quality and value in London from China, India, and Ceylon commands 10d. per pound. How many grains of silver could be paid for this tea in China compared with that which could be paid for it in India and Ceylon, neglecting freight and other charges? One thousand pence for 100 pounds of tea: the British monetary sign for a grain of gold 2·1238 pence, 1 per cent. charge for shipping silver to China. The sums are:—

$$\frac{1000 \times 35{\cdot}67 \times 101}{2{\cdot}1238 \times 100} = 16{,}963 \text{ grains of silver.} \quad \text{Ans.}$$

$$\frac{1000 \times 21{\cdot}9 \times}{2{\cdot}1238} = 10{,}311 \quad \text{,,} \quad \text{,,} \quad \text{,,}$$

The difference between these two quantities of silver is 66·72 per cent., which is the amount of bonus conferred through the exchanges upon equivalent prices of tea in China, India, and Ceylon.

Assume that the mints in India are again opened to silver and the ratio continues the same, and the Indian coinage charge the same, the difference between China and the other two countries would be barely 2 per cent. in favour of China. Thus—3 per cent. on silver to India:—

$$\frac{1000 \times 35{\cdot}67 \times 103}{2{\cdot}1238 \times 100} = 17{,}298 \text{ grains of silver.} \quad \text{Ans.}$$

This compared with 16,963 is a difference of 1·99 per cent. It is not at all likely that prices generally in China have altered more than they have done in India since 1873.

TABLE IV.

India's Foreign Import and Export sea-borne Trade in Merchandise and Treasure, including Re-exports; also on Government Account for two periods ended in 1853 *and* 1863, *but excluded from the other three periods. In XRs.—*000 *omitted.*

Merchandise.

5 years ended in March	Import Total	Import Average per annum	Export Total	Export Average per annum	Import	100	Export
1853	52,515	10,503	91,908	18,382	36 %		64 %
1863	114,440	22,888	174,969	34,994	31 ,,		69 ,,
1873	166,036	33,207	279,329	55,866	38 ,,		62 ,,
1892	330,700	66,140	499,454	99,891	40 ,,		60 ,,
1898	354,749	70,949	530,996	106,199	40 ,,		60 ,,

Treasure.

	Import Total	Import Average per annum	Export Total	Export Average per annum	Import	100	Export
1853	23,297	4,819	6,025	1,205	77 %		23 %
1863	75,312	15,062	4,512	902	94 ,,		6 ,,
1873	50,847	10,185	7,433	1,486	87 ,,		13 ,,
1892	81,788	16,358	10,705	2,141	88 ,,		12 ,,
1898	75,025	15,005	27,671	5,534	73 ,,		27 ,,

TABLE V.

*Ceylon's and Mauritius's Foreign Import and Export Trade in Merchandise and Treasure. In XRs.—*000 *omitted.*

Ceylon.

5 years ended	Imports Merchandise	Imports Treasure	Exports Merchandise	Exports Treasure
1853	5,766	3,996	9,827	3,111
1863	13,299	7,066	13,863	1,795
1872	19,161	4,498	17,996	796
1891	19,265	2,207	16,974	287
1896	20,745	2,504	20,617	215

Mauritius.

	Imports Merchandise	Imports Treasure	Exports Merchandise	Exports Treasure
1853	4,363	1,235	5,900	194
1863	10,744	2,092	12,010	208
1872	9,801	1,036	13,441	238
1891	12,609	403	14,694	399
1896	14,995	1,627	14,098	930

The trade of these three countries is represented because the silver rupee of 165 troy grains of pure silver is the measure of value in each.

The vastly important subject of the world's prices, the constituent parts which are included in them and their special effects upon the interchanges of things between man and community and community, has never engaged the attention of economists which it deserves. In fact, it may be asserted that economics, so far as it embraces the subject of prices, can only be experimentally taught by those who thoroughly understand the mechanism of the interchanges of things. Since the time when the human race commenced interchanges of things and services among themselves to the present moment one of the most important lessons of the time has been, and is, how such exchanges have been, and are, effected. Among barbarous people the difficulties of effecting the exchanges of things, as most know, is enormous. So easily are they carried out among a civilised people that the mechanism is not thought of and is, therefore, unknown to them. Millions consequently have embraced the idea that a paper intermediary under all circumstances is better than gold or silver, though history should have taught them that on the distrust of paper financial disaster results. In the investigation we are upon the fluctuation of prices forms a most important branch.

TABLE VI.

Calcutta Prices.

IMPORTS.

	Jan. 1863			Jan. 1873			Jan. 1897		
	r.	a.	p.	r.	a.	p.	r.	a.	p.
Grey Shirtings, 8¼ lbs.	8	11	0	5	13	0	4	3	0
Mule Twist		10	5		6	9		4	3
Copper, per Factory Maund ..	40	2	0	36	12	0	34	0	0
Iron—Flat, Square, and Bolt ..	2	10	0	3	11	0	4	15	0
Spelter	7	15	0	7	0	0	9	4	0
Coal		..		25	8	0	18	8	0
Raw Silk		3	4	2	13	0	2	7	0
Sugar—Mauritius		..		17	8	0	10	14	0

EXPORTS.

	Jan. 1863			Jan. 1873			Jan. 1897		
	r.	a.	p.	r.	a.	p.	r.	a.	p.
Castor Oil	12	2	0	13	12	0	18	0	0
Indigo—Good	260	0	0	252	0	0	220	0	0
Hides (Jan. 1896)	87	8	0	62	0	0	85	0	0 Jan. 1896
Jute	21	10	0	15	12	0	32	0	0
Gunnies	22	0	0	22	0	0	21	12	0
Shellac	53	8	0	62	8	0	70	0	0
Opium	1,346	0	0	1,344	0	0	1,089	0	0
Rice	1	9	6	2	3	0	5	3	0
Saltpetre	8	10	0	7	15	0	6	1	0
Linseed	4	1	0 July 1895	4	13	0	5	15	0
Cossimbazaar Silk	17	8	0	23	0	0	14	8	0
Sugar—Benares (March) ..	10	6	0	12	0	0	..		
Date	..			9	8	0	7	8	0
Dulloah	6	6	0	7	8	0	7	0	0
Tea—Fine Pekoe	..			1	3	0	10	0	
Good Souchong	..				10	3	4	9	
Congou	..				8	0	4	0	
Wheat—Doodiah	2	1	0	3	5	0	3	8	6

With regard to the prices of wheat, Mr. J. O'Conor, in his Prices and Wages in India, printed by the Government Press, Calcutta, 1880, gives the local prices of five descriptions of wheat in India from 1861 to 1884 in consecutive periods of four years, 12 years before and 12 years after the death of bimetallism.

TABLE VII.

Four Years' Average Prices of Wheat in Six Periods.

1861-64 ..	18·97	1873-76 ..		23·92
1865-68 ..	19·18	1877-80 ..		7·35
1869-72 ..	27·41	1881-84 ..		26·80
	65·56			68·07

Comparing the first with the second twelve years, an average rise of price of 3·8 per cent. is shown. During these 24 years there was no violent alteration in the purchasing power of the local price intermediary, such as occurred in the exchange intermediary in 1873, and again by legislation in India in 1893.

TABLE VIII.

Alterations of Prices of 9 Articles of Import and 18 Articles of Export by sea into and out of Calcutta in the three periods of five years each, 1st ended 1872, 2nd ended 1892, and the 3rd ended 1897. 100 represents the prices in 1873; the prices below or above that number represent the fall or rise in price of each article. The averages are for each of the six periods.

IMPORTS.

Ended March	Shirtings	Mule Twist	Copper	Iron	Spelter	Coal	Raw Silk	Sugar	Kerosine Oil
1868-72	105	99	83	67	116	75	139	95	0
1888-92	75	72	78	66	136	73	138	70	90
1893-97	71	71	85	103	138	64	129	74	97

Variations in Indian prices of Gold based on the London price of Bar Silver.

1868	98·96	1888	139·22	1893	164·66
1869	96·44	1889	140·85	1894	198·75
1870	98·76	1890	129·51	1895	207·33
1871	98·76	1891	126·67	1896	192·39
1872	99·02	1892	143·03	1897	200·84

The average of each period.

98·39	135·86	192·79

CALCUTTA EXPORTS.

Five Years ended	Castor Oil	Indigo	Hides	Jute	Gunnies	Shellac	Opium	Rice	Saltpetre
1872	95	113	78	121	99	68	93	96	95
1892	105	103	68	180	115	87	80	145	84
1897	118	103	125	202	106	136	94	183	98

Five Years ended	Linseed	Cossimbazaar Silk	Sugar—Benares	Sugar—Date	Sugar—Dulloah	Tea—Fine Pekoe	Tea—Good Souchong	Tea—Congou	Wheat—Doodiah
1872	99	108	96	69	89	107	104	126	81
1892	107	74	..	80	107	77	49	61	88
1897	119	71	..	84	115	82	52	63	102

These Tables present material for highly valuable instruction.

TABLE IX.

Percentage increase in the five years ended in each period over the previous period.

First period ended 1853.

	Imports	Exports	Total
2nd period ended 1863 over 1st period	117·9 %	90·3 %	100·4 %
3rd ,, 1873 ,, 2nd ,,	45·1 ,,	56·6 ,,	53·9 ,,
4th ,, 1892 ,, 3rd ,,	99·1 ,,	78·8 ,,	86·3 ,,
5th ,, 1898 ,, 4th ,,	7·3 ,,	6·3 ,,	6·7 ,,

It will be noticed that between each of the first four periods five years elapsed, whereas in the last period only one year elapsed. The comparison is, therefore, not a fair one. The very large percentage shrinkage on the previous progressions shown in the last period may, however, be taken as a serious strangulation of the trade of India.

The subject of Indian prices claims the greatest attention.

There was a delusive expectation entertained and expressed, even at the time of the sitting of the Royal Gold and Silver Commission, by recognised eminent authorities on the subject, that Bagehot's dogma, namely, " that in the event of a fall in the gold price of silver " there would be a compensatory rise in the prices of " things in silver standard countries," would have its effect sooner or later. It was not the opinion of the writer of the memorandum printed in the report of that Commission. After a most inadequate comparison of the standard currencies of the British Isles with that of British India the writer remarked, " Surely the sensi- " tiveness of the gold standard country must be vastly " greater than that of such a silver standard country. It " would appear to be a sounder theory that, given a fall " in the gold price of silver in such a country, gold prices

" generally should fall there rather than silver prices " should rise in such a silver standard country."

The effect of an altered ratio between any two of the world's seven currency intermediaries is as measurable and certain in its action as the determination of a rate of exchange of the day upon a given ratio between gold and silver. Thus, a higher silver price of gold in a silver standard country yields an equivalent higher rate of exchange in the silver standard country upon a gold standard country. As an instance, say something in India costs 860 rupees, take the exchange as it was in 1882 14·1 rupees for a £, the thing bought for sale in the British Isles must sell for £61 to return the cost in India. In 1892 the rate of exchange silver for gold was 16·2 rupees per £, and then a sale price of £53 would have covered the cost. In 1897 silver rupees for gold were 23·4 per £, and then £36 15s. would have covered the cost. But by the use of a silver-cum-counter rupee the rate was 14·454 rupees per £, and then £59 5s. covered the cost in the British Isles. It is unnecessary to deal with charges. Part of these accrue in the port of export and part in the port of import, such as occur in the import port are not subject to the operation of the exchange intermediaries.

We will now examine the Indian prices of merchandise in Table VIII.

TABLE X.

Average of each three periods of five years each, presenting nine quotations of Imports and 17 and 18 quotations of Exports, showing the variations from 100. The prices of 1873 are taken at 100, Col. I. The average rate of exchange between silver rupees and a pound, &c., Col. II. The percentage rise in the silver rupee price of a pound on period 1872, also the same upon the rupee cum-counter-charge price of a pound, Col. III. The figures which would represent prices had they risen in Calcutta in proportion to the rise in the silver rupee price of a pound and in proportion to the rise in the silver cum-counter-charge price of a pound in period ended March 1898, Col. IV.

	Imports				Exports			
5 years ended March	Col. I. Rise or Fall.	Col. II. Rupees per £	Col. III. Rise on 1872	Col. IV.	Col. I. Rise or Fall	Col. II. Rupees per £	Col. III. Rise on 1872	Col. IV.
1872	97·4 %	10·68	..	..	96·5 %	10·68	..	..
1892	92·4 ,,	14·81	38·6	128·1	94·7 ,,	14·81	38·6 %	131·3 %
1898	77·6 ,,	21·15	98·0	153·6	109·0 ,,	21·15	98·0 ,,	216·7 ,,
1898	Silver-cum-counter-charge rupee	16·92	58·4	122·9	..	16·92	58·4 ,,	172·7 ,,

There can be no question about this fact that, on the bases given, had Bagehot's dogma been correct, the figures in column 4 would have represented Calcutta prices instead of the figures in column 1—that is to say, on imports 128·1 instead of 92·4, 122·9 instead of 77·6; and upon exports 131·3 instead of 94·7, 172·7 instead of 109·0. Also that the comparison between figures 216·7 and 172·7 in the second column 4 of what the prices would have been had not a silver-cum-counter-charge intermediary taken the place of a silver intermediary in the exchanges between British India and the British Isles. The difference between these two figures, 172·7 and 216·7, amounting to a rise of 25·6 per cent., is the measure of the percentage by which the Calcutta trade was handicapped by countries possessing effective silver monetary systems. It may be here noted that, taking 26⅝ pence per ounce of silver, May 27th price, *i.e.*, 35·43 parts of silver to 1 part of gold, the silver rupee price of a pound

is 24·2 rupees. Fifteen gold rupees for one pound, or 16 pence per rupee, is the desired goal of the Indian legislator. The world's present gold value of the silver rupee expressed in the money of the British Isles is 9·893 pence; the difference between 16 pence and 9·893 pence is 61·73 per cent. on the lower figure. By this percentage British India's export trade would be handicapped by countries possessing an automatic silver currency on their sea-boards. The present rate for Council drafts on India is a small percentage less than 16 pence per rupee in as highly dangerous and rotten intermediary as inconvertible paper based on either gold or silver. In the tremendously dangerous financial position of British India, the successful issue of a gold standard, if it can be accomplished with fairness to, and with the will of, the people, who are mostly very poor but with the keen perception that their silver is their most liquid wealth, would be the only justification of the means. Perhaps there are vital conditions to be fulfilled without which the effort would seem doomed to become unsuccessful.

Adverting to Table VI., which quotes the prices of imports into, and exports from, Calcutta for January of the years 1863, 1873, and 1897, it must be stated that the British cost of placing a silver rupee into India to be manufactured out of bar silver sent from London, with 3 per cent. added for coinage and transmission charges, was in 1863 23·493 pence, in 1873 22·68 pence, in 1893 13·64 pence, in 1897 10·55 pence; the rate for Council drafts in 1897 was 14·454 pence per rupee. On Bagehot's theory prices in 1873 should have risen upon those of 1863 by 3·6 per cent., in 1893 upon those of 1873 66·3 per cent.; had the exchange intermediary been continued in 1897 the rise should have been 115 per cent. over 1873, but as the legislative rupee—or, as the writer terms it for

want of a more euphonious name, the silver-cum-counter-charge rupee—came into existence the prices in 1897 should have been 56·9 per cent. higher than in 1873. Upon the comparison of what did take place in prices with what should have taken place, it must be asserted that Bagehot's dogma has not borne the test of experience. Should it be advanced that there has not been anything like a fall of prices in the articles mentioned in London in proportion to the rise which should have taken place in Calcutta on Bagehot's dogma, it would be replied that, if it be so, the better for those who traded in the goods, as their profits must have been abnormal. On the principle of competition it is unlikely that the trader's profits in most of the articles named have been exceptional since 1873.

No doubt, during the periods for which prices of goods in Calcutta are given, variations in prices have arisen from altered cost of production and charges of various descriptions which it would be exceedingly difficult to measure. Not so with the exchange intermediary: in this case, at one period an effective silver standard one, at a later period a silver-cum-counter-charge one—the cause and extents of the alteration can be measured with the nicest accuracy. It may, perhaps, be truly asserted that the figures given demonstrate that, for interchanges within India, the intermediary has so far been a silver rupee, at all events until 1893, while the intermediary for India's interchanges with the rest of the world was, until 1893, a silver rupee, which constituted the British pound of vastly greater rupee cost than before, and since then a silver-cum-counter-charge rupee. And further, that the altered exchange value of the exchange intermediary consequent upon the closing of the mints in Europe and the United States against the unlimited reception of silver from the

public, did not affect local prices in India between 1873 and 1893.

The writer, in his *Universal Cambist*, published last year, made 55 suggestions for the consideration of the students of the mechanism of the interchanges of things and the quality and functions of money. The following are four of them:—

"XX.—Whether, owing to the widely fluctuating "ratios at which five of the world's most important "intermediaries have exchanged during the past twenty "years, the internal prices of things in countries using "the silver standard and in countries using inconver- "tible paper, have governed their import and export "prices; whilst import and export prices in countries "using the gold standard, have governed internal prices?"

"XXIII.—Whether the observation of the Hon. T. B. "Reed, Speaker of the House of Representatives in the "United States of North America, 'that the yellow men "'with the white money hold at their mercy the indus- "'tries of the white men with the yellow money,' is not a "corollary in a terse form to the experience of the expert "in the exchanges, the international and intercolonial "trader, and the financier?"

"X.—Whether it is not evident that, if the whole "world possessed one intermediary only in the shape of "a scientific gold system, discarded monetary signs, and "adopted one money weight measure, prices of things, "and the foreign and colonial rates of exchange of the "one intermediary would be so simple that school "children could understand them?"

"XI.—Whether, under such conditions, prices through- "out the whole world would be a definite weight of pure "gold, and comparative prices would be discerned at a "glance; the fluctuation of exchange of the intermediary,

" a definite weight of pure gold, perceivable also at a " glance; and, above all other considerations, commerce " could be carried on upon the terms of barter? "

Is it too much to hope that the ideas expressed in these 55 suggestions will have been thought out by each member composing the Committee now sitting upon the scheme for India's future standard currency, and by the examinees who may give evidence thereat?

The question may be asked here, How do inconvertible paper currencies act upon the internal prices of things in a country? Do they alter with the altered rate of premium expressed in paper for the standard metal?

Inconvertible Paper based on Gold.—Among the human beings which constitute a civilised or semi-civilised society the inability to meet pecuniary obligations is an act of bankruptcy with all its consequences. The failure of a State to encash its legal tender notes is equally an act of bankruptcy. Individual and corporate bankruptcy necessitates a suspension of operations. Not so with State bankruptcy. Production, distribution, and consumption among a people do not stop. These processes may be diminished, the objects upon which they are exercised may be somewhat changed. The intermediary which, before the suspension, was, say, either gold or silver of a given weight, becomes inconvertible paper at a small or large premium, even to 400 per cent. and more upon the weight of standard metal. The currency expressing price and the foreign and colonial exchanges, which was before either an effective gold or an effective silver one, becomes an inconvertible paper currency based either upon gold or silver. A wretched, vacillating, degrading currency which it is the object of all patriotic citizens to remove. Let us examine this class of currency. It is clear that a premium in paper upon a weight of standard metal in a

standard coin cannot increase prices in the country using such an intermediary. Assume that the Argentine peso, the mint issue contents of which is 22·4 troy grains of pure gold, is at 150 per cent. premium in paper. This percentage premium acts as a discount on the weight of pure metal, reducing it to 8·96 grains, and this weight is still called, and practically becomes the intermediary peso. Strictly speaking, prices should fall at once 60 per cent. The foreign and colonial exchange intermediary in this instance becomes also the inconvertible paper based on gold currency intermediary. If prices of things in Argentina continue as they were under an effective gold monetary system, the things purchased there could be sold in effective gold standard countries at 60 per cent. less, with the same amount of percentage profit as when Argentina possessed a gold monetary system. Of course, if under the hardly conceivable event of a rise of 150 per cent. in the inconvertible paper prices of things, the cost of them in an effective gold standard country would be the same under the two different intermediaries. Should inconvertible paper prices of things fall, and the inconvertible paper rate of exchange remain the same, the prices of the things in an effective gold standard country could be made less by the amount of fall. In chapters 25 to 27 of Mr. George Clare's *A B C of the Foreign and Colonial Exchanges* there are some sensible remarks, with three diagrams, upon the "paper exchanges," from which those to whom this subject is perplexing could derive enlightenment. These observations upon an inconvertible paper based on gold currency are equally applicable to an inconvertible paper based on silver currency.

Messrs. Norman Brothers, exchange brokers, of Calcutta, during the years 1868 to 1875, issued a circular upon the course of the exchanges in Calcutta, with a

record of rates of exchange, being the average for each month of the year. In their circular of January 1868 they wrote: "Since the capital of other countries fixed in "this country must find its way into and out of it in "goods, specie, bullion, or securities, it is necessary to "bear in mind that *such amount of capital has no effect* "upon the equilibrium. Though the published imports "and exports may show it entirely or in part, no return "has to be made for it except the titles of the properties "acquired: thus, as it is our object to endeavour to assist "in determining the effect of the trade upon exchanges, the "Customs House returns, as a whole, are very insufficient "criteria, not only because they partly contain such "capital, to mention only rails and machinery, and ships' "disbursements, but also because charges, commission, "&c., not found there have an important bearing upon "the subject, it is, therefore, our intention to publish "monthly, together with the fluctuations in exchange in "the previous month, the proximate real value of the trade "of the port affecting exchange." Since a record of the receipt and dispatch of enfaced Government loan securities was attainable at Calcutta, these are included.

The last issue of this description of circular was in January 1875, and may be of interest at the present time.

TABLE IX.

Calcutta's Foreign Goods, Bullion and Specie sea-borne Trade with set-offs for the total and average of six years ended December 31st 1874; the quantities as per Calcutta Custom House monthly returns at carefully estimated remitting values in XRs. ooo *left out.*

IMPORTS AND SET-OFFS AGAINST EXPORTS.

	Total	Average per annum
Merchandise	92,566	15,428
Bullion and Specie	22,396	3,733
Rails and Machinery	2,910	485
	117,872	19,646

Set-offs.		
Government Drafts on Calcutta ..	49,158	8,193
,, ,, Enfaced Paper	2,915	486
,, ,, Securities, import	11,868	1,978
Family Remittances, Interests, Profits and Freights	16,200	2,700
Freight on Rice, famine operations, 1874	350	
XRs.	198,363	XRs. 33,003

Exports and Set-offs against Imports.

	Total	Average per annum
Merchandise	132,735	22,123
Bullion and Specie	8,165	1,361
	140,900	23,484
Set-offs.		
Rails and Machinery	2,910	485
Government Securities, export	11,855	1,976
Ships' Disbursements	3,573	596
XRs.	159,238	XRs. 26,541
Proportion of Loans taken up in Calcutta with European Capital	Not estimated.	
Foreign Capital fixed in Private and Joint Stock enterprises		

It was thought by the compilers of this effort that India afforded the best field for the attempt at such a statement, because a register is kept of the import and export of Government enfaced loans for the payment of interest by bills on India drawn in London by the Secretary of State. Over the period of the six years the imports and exports of these securities figure up the same amount, though each year presents wide fluctuations. The sums presented show an excess import with set-offs against exports and stated set-offs of XRs. 39,125,000, or XRs. 6,521,000 per annum.

However correct this estimate for Calcutta may be, so far as it goes, it is of no value as a guide to the whole of India's sea-borne trade and external financial obligations. Although this be so, the principles may be applied to the figures given for India's total trade and financial operations set forth in this investigation into the three 5-year periods ended in 1873, 1892, 1897-8, including Ceylon and Mauritius.

TABLE X.

*The Yearly Average Foreign Merchandise and Treasure operations in India, Ceylon, and Mauritius. XRs.—*000 *left out.*

	Merchandise.		Treasure.	
	Import	Export	Import	Export
Average of 1st 5-year period ..	38,197	62,154	11,291	1,692
,, 2nd ,, ..	72,517	106,226	16,879	2,274
,, 3rd ,, ..	78,097	113,162	15,831	5,597
	188,811	281,542	44,001	9,563
Treasure	44,001	9,563		
	232,812	291,105		
Council Drafts set off against Exports	52,082			
Balance for Family Remittances, Profits, Interest and Freights ..	6,211			
XRs.	291,105,000			

or XRs. 97,035,000 per annum.

It will be observed that in this estimate drafts for enfaced paper, acting as a set-off against exports, has been neglected, also the movement of Government loan securities.

It may be permissible to treat the figures of merchandise for India, Ceylon, and Mauritius in another manner.

TABLE XI.

Foreign Import and Export of Merchandise of India, Ceylon, and Mauritius. Yearly average of 3 five-year periods ended in 1873, 1892 *and* 1897-8 *in XRs.* 000 *left out.*

	Import	Export	
1873	38,197	62,154	
1892	72,517	106,226	
1897-8	78,097	113,162	
	188 811	281,542	
			Assume as a set-off against Exports.
	72,000		XRs. 16,000,000 Council Drafts per annum, and XRs. 8,000,000 for Family Remittances, Profits, Interest, Freights.
	20,731		Balance—XRs. 6,910,000 per annum. .
XRs.	281,542,000		or XRs. 92,947,000 per annum.

It will be noticed that in Tables X. and XI. the two following set-offs against imports are neglected, viz., proportion of loans taken up in India with European capital, and foreign capital fixed in private and joint stock enterprises.

The second and largest Blue Book issued by the Royal Gold and Silver Commission of 1886-9 has always appeared to the writer as a miserable failure of an effort to elevate credit instruments to the same platform as a monetary standard substance. The Commission was appointed to discover the cause of the fall of prices in the British Isles.

Several accredited authorities in this country maintained (1) that the fall in prices since 1873 is due to a traceable re-distribution of gold, and a consequent scarcity of this currency substance in the British Isles. On the continent of Europe and in the United States the fall of prices was attributed to (2) over-production or diminished cost of production and transport and other charges on raw and manufactured goods. (3) The increased silver cost of gold and the decreased gold cost of silver acting through the foreign and colonial exchanges, which is now becoming the acknowledged main cause, was put aside, not apprehended, by the Royal Gold and Silver Commission of 1886-9 and by the Agricultural Commission of 1893-6.

With regard to the first asserted cause it is doubtful whether it can be proved that between 1873 and 1893 there has been an abnormal deficiency of local currency in any leading country, the British Isles included. That cause is discredited. The second cause has most probably been in operation to a limited extent, taking into consideration that wages generally have risen since 1873. There are writers who do not believe that deficiency of

local currency has caused the fall of prices, who seem to be entirely ignorant of the action of currency intermediaries used in the foreign and colonial exchanges upon prices.

The following are some opinions of those who exclude the altered ratio between the metals as a cause. Most of them were written before the promulgation of the writer's discovery in 1895 that J. S. Mill's dogma, that the introduction of an intermediary does not alter the conditions of barter, is only true on one condition. The condition being that the world's interchanges be through the use of one intermediary only, whereas at present they are carried out by means of seven intermediaries, five of them of the most widely varying and diverse characters. That the fluctuations in the ratios between five of these intermediaries has proved the chief cause of the fall of prices of things imported and exported in these islands since 1873 is held by experts in the foreign and colonial exchanges, intercolonial and international traders and financiers.

Sir Thomas, now Lord, Farrer.—A minute in the Royal Gold and Silver Commission Report 1886-9: "I wish to "add, for the sake not of dissent but of distinctness, that "I do not believe that the change in the relations between "gold and silver currencies has lowered English prices." And so recently as March 1898, in one of the tracts issued by the Gold Standard Defence Association, under the title, "Has the gold standard made the rich richer and "the industrious poorer?" Page 15: "But it is clear "that the changes which have taken place are not due to "*currency*, but to factors of a different kind, which have "altered and which, we may hope, will continue to alter "the relative position of different classes. These factors "may be stated as follows:—

"(1) Improvements in production and transport, "which have lowered prices, especially of those things "which form a large proportion of the consumption of "the poorer classes.

"(2) Foreign competition, which, taking advantage "of improved transport, has specially reduced the price "of agricultural products.

"(3) Increase of capital, and consequently of demand "for labour, which has either increased the nominal "wages of labour or has prevented them from falling."

By this further pronouncement of Lord Farrer's in March 1898, taken in connection with that of his in the Royal Gold and Silver Commission Report, one is tempted to ask: Is there not confusion here? Perhaps he means local currency in 1898, which, if the writer mistakes not, is still considered by Sir Robert Giffen as the cause of the fall in prices since 1873? Did he mean by currency what is to be understood by his minute in the Gold and Silver Commission Report? The foreign and colonial exchange currency intermediaries? And that the distinction between them had, so far as he could judge, no effect to cause a fall of prices in the British Isles. If so, he appears to be absolutely wrong in his conclusion.

In an article by Professor Dr. W. Lexis, of Gottingen, on "*The Agio on Gold and International Trade*," to be found in the June 1895 Journal of the British Economical Association, he states:—"Of Russian export we may "therefore say the same as of Indian; when the exchange "value of the standard of the country has been falling, it "has exerted a certain influence upon the prices of "the general market, which would have been absent if the "exchange had been steady. But it in no way follows "that the influence has been the decisive and regulating

"factor in determining prices in the general market,
"The fall in the prices of grain between 1881 and 1887 has
"been essentially caused by the development of production
"and the general competitive conditions of the market,
"and the depreciation of the rouble, like that of silver, has
"contributed comparatively little to the result."

One of the Sound Currency tracts issued in the United States in January 1896, entitled "*Conditions for American "Commercial and Financial Supremacy*," by M. Paul Leroy Beaulieu, contains the following :—

"*Real Cause of Decline in Prices.*

"We need not here pause to consider the argument "so often advanced—although it has never been de- "monstrated—that the fall in prices for the last quarter of "a century is due to the proscription of silver by "the monetary legislation of the principal European "nations. The fall in prices had one, or rather two, "manifest causes—the considerable increase in the "production of most commodities, and the progress in "industrial methods and in the application of science to "this production. That is the real cause of the decline "in prices, and it is chimerical to hope to raise them "artificially. On the contrary, efforts must be made to "extend markets, by removing obstacles that disturb "relations and exchanges between nations, and to pre- "vent combinations extending over long periods. One "of these obstacles is the uncertainty in monetary "matters kept up by the partisans of what they call the "'rehabilitation' of silver. New international monetary "conferences may be called together, but it may be "safely predicted that after lengthy discussion concerning "the fall in the price of silver, and the evils, real or

" imaginary, that have resulted from it, they will adjourn " without reaching any conclusion."

In the following tracts issued by the Gold Standard Defence Association, of London, there is not an allusion to the action upon prices resulting from an altered ratio between five vastly diverse monetary and currency intermediaries used in the foreign and colonial exchanges.

January 1896. No. 14. "*What is the appreciation of "gold, and what is its effect on the prices of commodities and "labour?*" by the late Lord Playfair. "During the last "25 years enormous advances have been made in pro- "duction and distribution of commodities; these causes "alone are quite sufficient to account for the general fall "of prices." Instances are given of the causes in the fall of prices of iron, cotton, and wheat. "Now the world "has a common market and prices are no longer "determined by local conditions." The main argument is against the idea of the appreciation of gold.

November 1897. "*The Bimetallic Report of the Agri- "cultural Commission.*"—A reply. No. 28, by the Right Hon. G. Shaw-Lefevre. The writer quotes Sir Robert Giffen, and winds up an interesting 28 page tract with the following: "It has been my object, therefore, in this "paper to show that while the fall of prices has been "the primary cause of the depression of agriculture, the "fall has not been mainly the result of a contraction of "the gold supply, or of the demonetisation of silver, or of "an artificial stimulus of exports from countries; and "that any attempt to raise prices artificially by currency "changes in this or other countries would not have the "desired beneficial effect upon agriculture. It would "more probably, by shaking confidence in the credit and "commercial stability of countries which attempt it, pro- "duce results the very opposite of those which are

"intended and hoped for." That to which this pamphlet is a reply is set forth thus: "A majority of "the members of the Agricultural Commission have "drawn up a separate report in which they attribute "the depression of agriculture to the *appreciation of gold*, "resulting in part from its reduced production in the "few years which succeeded 1873, and in part from the "demonetisation of silver by Germany and other "Powers which previously had a silver standard, and "from the break of the Convention of the Latin States, "by which they contend that a parity between silver and "gold had been maintained for many years in the "ratio of $15\frac{1}{2}$ to one. They are also of opinion that the "continuous fall in the price of silver since 1873 has "had the effect of stimulating the export of wheat and "other produce from silver standard countries, such as "India; that the same effect has been produced by the "depreciation of the paper currency of the Argentine "Republic, and that the artificial competition thus pro-"duced has lowered the price of wheat and other produce "in our markets to the detriment of farmers."

It does seem a marvellous fatality that none of the champions of monometallism and of bimetallism, whose lucubrations appear in their respective organs in this country, as well as in the United States, can perceive that which is recognised by the experts in the foreign and colonial exchanges, the intercolonial and international traders, and the financiers, to be a measurable cause of the fall of prices, namely, the altered ratio between the world's five diverse monetary and currency intermediaries used in the foreign and colonial interchanges of things.

In a memorandum of the writer's which appears in the Royal Gold and Silver Commission Report 1886-89, the

first two clauses are as follows:—"I.—I am convinced "that the sole cause of the world-wide fall in the gold "price of silver, amounting to 25·57 per cent., and the "rise in the silver price of gold, amounting now to 33·93 "per cent., is the closure of the mints of the countries "forming the Latin Union and the United States of "America against the unlimited reception of silver from "the public. II.—I am equally convinced that the chief "cause of the fall in prices generally in Great Britain "since 1873 is distinctly traceable to the fall in the gold "price of silver." This was written for the Commission in November 1887.

TABLE XII.

The Annual Volume of the World's Foreign and Colonial Interchanges of Merchandise, largely based upon this year's edition of "The Statesman's Year Book." (a) attached to countries, indicates the intermediary used as an effective gold one; (b) as an effective silver one; (c) as an inconvertible paper one, based on one or other of the precious metals; (d) as a silver cum-counter-charge one.

			Population.		Merchandise.
24	Countries	(a) ..	425,173,000	..	£2,842,926,000
23	,,	(b) ..	450,906,000	..	99,569,000
20	,,	(c) ..	138,853,000	..	411,171,000
4	,,	(d) ..	324,596,000	..	136,400,000
71	Countries	.. ..	1,339,528,000	..	£3,490,066,000

Under (*a*) the trade of Russia figures at roubles 1,279,100,000. The British monetary sign for this in the new gold rouble is £135,236,000; in the old gold rouble £202,823,000; in the silver rouble at 35 parts of silver to one part of gold, £89,887,000. Under (*b*) China figures for 32,456,000 Haikwan taels. This tael, according to Tate and Muhleman, consists of 590·35 troy grains of pure silver, which, at 35 to 1, gives £48,442,000. Under (*c*) Austria-Hungary figures for florins 1,479,000,000. If these be gold florins the sterling amount at par would be

£123,234,000; if in crowns, the new chief money of account, the amount is £61,613,000. If they be silver florins at the same ratio taken for the others, the sterling amount is £64,172,000. Under (*d*) the trade of India, Ceylon, and Mauritius is taken at the value of 15 rupees for £1. The Java trade at the gold value of the day for the silver guilder, £13,710,000. The gold guilder value is £31,150,000. In this table, merchandise alone has been taken when practicable, excepting in instances where gold and silver are products of the country. The *Economiste Européen* gave the world's total trade in 1893 at $17,488,000,000 or £3,594,000,000.

Of the population and trade represented by Table XII. 81·46 per cent. of value and 31·74 per cent. of population was carried out through the instrumentality of an effective gold monetary intermediary; 2·84 per cent. of value and 33·66 per cent. of population by means of an effective silver monetary intermediary; 11·79 per cent. of value and 10·36 per cent. of population by means of an inconvertible paper intermediary based either upon gold or silver; and 3·9 per cent. of value and 24·23 per cent. of population, by means of a silver-cum-counter-charge intermediary.

The trade of the people with the effective gold standard shows £6·8 per head. Through the effective silver standard 4s. 7d. per head. Through the inconvertible paper intermediary £2·96 per head. Through the silver-cum-counter-charge intermediary 8s. 5d. per head.

It was in June 1887, at the inaugural meeting of the Imperial Institute, that Professor Huxley spoke upon the importance of science as applied to industry and the distribution of commodities, especially in view of the coming warfare for supremacy in supplying and carrying on the interchanges of things in the world. The writer,

during nearly 60 years' experience of business, has never doubted the soundness of the policy of as perfect freedom of international and intercolonial trade as a country's position will admit of. He had always held that exports of things paid for imports of things, and that imports of things paid for exports of things, and that most benefit would result from these exchanges being entirely unfettered by legislative action. He would still hold the same opinion if the whole world effected its interchanges of things by means of one and the same intermediary. If the Government of a country grants a drawback of a portion of the cost price of an article for the purpose that the thing might be sold cheaper than its cost in another country, it appears to the writer a piece of foul trade towards some other producer, who, under fair trade, would have occupied the position usurped by the foul trader. Surely, this is commerce of a nature which fair trading countries should do their utmost to stop. The principles of doing to others as you would be done by, live and let live, on the terms of honest, straightforward competition, are conditions in which all trading people, whatever their codes of religions or morals may be, agree in as rules to govern their business transactions. A countervailing duty equivalent to the bounty conferred in the country importing goods thus favoured is the fair and honest way of meeting such foul trade. The same effect as the sugar bounty conferred by some European States is produced by the world's use of seven different monetary and currency intermediaries, as the writer has shown in all that he has written, especially in his *Cambist*, since 1895. The operation of these different intermediaries in handicapping industries appears to be only understood by a few interested trades. The writer is not aware that any professional economist in the British Isles

has amended his faith and dogmas upon money and trade so as to bring them into line with the actual daily mechanism of the world's interchanges of things, and yet, meantime, British India, through her Viceroy and Council, presents a scheme to help the finances of the country, the trade of the country, and the individual interests of its people to a better footing than held at present!!

We are in a vastly important epoch in the world's commercial history. The interchanges of things has just developed, even under its miserable machinery, sufficiently to give a slight indication as to what they may grow to in the next half-century. Should mankind be turned from the ambitious and horrors of war to a most intense industrial struggle, well would it be if the world could agree upon what should be considered fair and foul in the encounter. The subject of paramount importance—that which would conduce more than anything else to the welfare and physical happiness of mankind—is the possession by the whole world of a scientific automatic monetary system, consisting of one substance. Even could this stupendously difficult operation be effected, there would be still play for five descriptions of trade—I. Fettered, II. Free, III. Fair, IV. Foul, and V. Foolish.—If it is a fact that the world will never be able to effect its interchanges of things upon the terms of barter until each country possesses one and the same substance as its measure of value and monetary intermediary, or protects its own industries where needed by a customs charge equivalent to a bonus conferred by the bad intermediary of a shipping country; why should there be delay? Is it impossible to fairly meet foul trade?

Let us look again at our Table XII. Into the first category, (*a*) effective gold standard countries, we will

bring in Austria-Hungary, before under inconvertible paper on gold, British India, Ceylon, and Mauritius, thus leaving five European countries and fourteen countries in Central and Southern America under inconvertible paper currencies based on gold or silver, and one country under silver-cum-counter-charge currency, and twenty-three countries with effective silver currencies.

TABLE XIII.

(a) Attached denotes an effective gold intermediary; (b) attached denotes an effective silver intermediary; (c) attached denotes inconvertible paper intermediary based on gold or silver; (d) attached denotes a silver-cum-counter-charge intermediary.

			Population.	Merchandise.
28	Countries	(a) ..	756,911,000 ..	£3,087,616,000
23	,,	(b) ..	450,906,000 ..	99,569,000
19	,,	(c) ..	97,621,000 ..	289,171,000
1	,,	(d) ..	34,090,000 ..	13,710,000
71	Countries	.. ..	1,339,528,000 ..	£3,490,066,000

Of the population and trade represented in Table XIII., 88·48 per cent. of value and 56·45 per cent. of population could be effected through the instrumentality of an effective gold monetary intermediary; 2·88 per cent. of value and 33·67 per cent. of population by means of an effective silver monetary intermediary; 8·25 per cent. of value and 7·28 per cent. of population by means of an inconvertible paper intermediary, based either upon gold or on silver; ·39 per cent. of value and 2·59 per cent. of population by means of a silver-cum-counter-charge intermediary. The trade of the people with the effective gold standard would show £4·08 per head; through the effective silver standard 4s. 7d. per head; through the inconvertible paper intermediary, £2·96 per head; through the silver-cum-counter-charge intermediary, 8s. per head. This is not a matter for one country only, it is of vast

importance to every country, and especially those which are in the vanguard of civilisation. All Europe and all the Americas, except Mexico and Bolivia, have declared for gold. China, which figures for £48,442,000 of the above £99,000,000, might be helped in the same direction if the European Powers which are now seeking extended commercial interchanges with that country, become solicitous for her welfare in the great concert of trading nations. Persia, Siam, and the rest of the Far East must follow as they best can, but self-protection and fair trade demand an adjustment to meet a bonus conferred by a bad monetary or currency intermediary. Perhaps some such drastic measure might have a healthful effect upon the financiers of numerous republics in Central and South America, and be the means of hastening the abolition of their rotten currencies for sound monetary systems.

It cannot be too persistently or frequently stated in the present day that the monstrous idea of a gold standard without any gold is utterly opposed to all sound principles of money. All legerdemain and make-belief in the possession of a monetary standard is extreme childishness. India might obtain millions by loan and place gold in State cellars, but until the native holder of a State note can obtain the weight of gold indicated thereon in exchange for it, without question, delay or expense, she cannot have a gold standard. Unless there can be some very good assurance, through a combination of measures, that the Indians shall possess gold in the place of silver, any attempt at a change may prove worse than a return to silver at once.

The writer may be permitted to quote another suggestion from his *Cambist*: "Whether it would not be a "tremendous boon to the money power, the banking

" power, in fact, to all associations and individuals " receiving interest on property in other countries, if the " intermediary in each country could be kept within, say, " a safe distance from metal points? Whether the com- " bined operation of the money and banking powers " could not effect this to the benefit of local industries " and of the commerce of the world as well?"

The following is from Jevons's *Investigations in Currency and Finance*, page 355: "There can be no reasonable " doubt that in the event of a great war the power of " paper money would be brought largely into play."

" In view of these considerations the questions of " bimetallists and anti-bimetallists, however interesting " and perplexing they may be from a scientific point of " view, lose all practical importance."

" It is with grave regret that I noticed the remarks of " Sir J. Lubbock and other speakers in the debate on the " £1 note question. It was treated as a matter of course " that a forced paper currency would be resorted to in " time of war. . . . Above all I insist upon the " importance of establishing a rule against the sudden " replacement of masses of metal by paper currencies. " As several nations may join in war, this means an " immense sudden supply of bullion and a decreased " demand. . . . I can only repeat that these exces- " sive rises or falls of value are not due to silver or gold, " but to paper. . . . The real evil comes from paper. " *If nations could be got to contract not to issue [forced]* " *paper money the effect would be excellent.*"

The writer presents these thirteen tables to the students of the mechanism of the interchanges of things, with the hope that they may prove of some small use in the con-

sideration of the Indian proposal with regard to British India's future standard currency. He closes with the following suggestions:—

Whether fair trade and foul trade should not be clearly defined, and the practice of foul trade in the carrying on of interchanges of things between man and man and community and community denounced?

Whether immediate efforts should not be made to form a Zollverein of the British Empire upon the basis of fair trade, and with the determination to obtain and maintain a gold standard monetary system for all parts of it?

Whether such a Zollverein should embrace as many foreign countries as would join it?

Whether the chief cause of the unremunerative nature of wheat culture and the very serious diminution of corn tithes which has existed in the British Isles for the best part of the last quarter of a century is not the altered ratios between five monetary and currency intermediaries used in the world's foreign and colonial interchanges of things?

Whether it is not a pressing need on everyone who has the mind for it, especially statesmen and legislators, to do their utmost to probe to the bottom and discover a sound foundation for the world's interchanges of things, and a corrective to the injustice arising from the machinery at present in use?

CHAPTER VIII.

AN ANTIDOTE TO BI-METALLISM. OR LOCAL DUAL STANDARDS; WRITTEN IN 1882, AND DISTRIBUTED AT THE INAUGURAL MEETING OF THE BI-METALLIC LEAGUE HELD AT THE LONDON MANSION HOUSE IN THAT YEAR.

I.—Definition of Bi-metallism and Mono-Metallism.

1. Bi-metallism—What it is.—The reception from and the coinage for the public under national law by the mints of the nation of any quantities of both gold and silver, and returning the same to the public at a fixed proportion of one to the other, the general approval being in the proportion of one part of pure gold to fifteen and a half parts of pure silver; also the national appointment that both shall be legal tender to unlimited extent.

2. Mono-metallism—What it is.—The reception from and the coinage for the public under national law of either gold or silver (but not both), and returning the same to the public; also the national appointment that one metal only shall be legal tender to unlimited extent.

3. Experience of the markets of the world has shown that the variation between gold and silver has ranged between one part of pure gold to ten parts of pure silver, and one part of pure gold to twenty-two and half parts of pure silver.

II.—The Exchange Value of Gold and Silver Governed by their Cost Value.

4. The precious metals, as currency, subject to the same laws of value as other substances and

dependent upon cost of production—proved from the writings of Ricardo and J. S. Mill. The following quotations are from—

Ricardo—*On the rent of Mines.*—"It will be sufficient to remark that the same rule which regulates the value of raw produce and manufactured commodities is applicable also to the metals, their value depending not on the rate of profits, nor on the rate of wages, nor on the rent paid, but on the total quantity of labour necessary to obtain the metal and to bring it to market. It has, therefore, been justly observed that, however honestly the coin of a country may conform to its standard, money made of gold and silver is still liable to fluctuations in value, not only to accidental and temporary, but to permanent and natural, variations in the same manner as other commodities."

On Foreign Trade.—"Any improvement in the facility of working the mines by which the precious metals may be produced with a less quantity of labour will sink the value of money generally. The nations of the world must have been early convinced that there was no standard of value in nature to which they might unerringly refer, and therefore chose a medium which, on the whole, appeared to them less variable than any other commodity."

On Currency Banks.—"Gold and silver, like all other commodities, are valuable only in proportion to the quantity of labour necessary to produce them and bring them to market. Gold is about fifteen times dearer than silver, not because there is a greater demand for it, nor because the supply of silver is fifteen times greater than that of gold, but solely because fifteen times the quantity of labour is necessary to procure a given quantity of it."

On the influence of demand and supply upon prices.—"It is cost of production which must ultimately regulate the price of commodities, and not, as has

been said, the proportion between the supply and the demand. The proportion between the supply and the demand may, indeed, for a time affect the market value of a commodity until it is supplied in greater or less abundance according as the demand may have increased or diminished, but this effect will be only of temporary duration."

On the high price of Bullion.—"Gold and silver, like commodities, have an intrinsic value which is not arbitrary, but is dependent on their scarcity, the quantity of labour bestowed in procuring them, and the value of the capital in the mines which produce them. If the quantity of gold and silver in the world employed as money were exceedingly small or abundantly great, it would not in the least affect the proportions in which they would be divided among the different nations. The variation in their quantity would have produced no other effect than to make the commodities for which they exchanged comparatively dear or cheap. The smaller quantity of money would perform the functions of a circulating medium as well as the larger. However exact the conductors of the mint may be in proportioning the value of gold to silver in the coins, at the time when they fix the ratio, they cannot prevent one of these metals from rising while the other remains stationary or falls in value. Whenever this happens, one of the coins will be sold for the other. Mr. Locke, Lord Liverpool, and many other writers have ably considered this subject, and have all agreed that the only remedy for the evils in the currency proceeding from this source is to make one of the metals only the standard measure of value. Mr. Locke considered silver as the most proper metal for this purpose, and proposed that gold coins should be left to find their own value and pass for a greater or less number of shillings as the market price of gold might vary with respect to silver; Lord Liverpool,

on the contrary, maintained that gold was not only the most proper metal for the general measure of value in this country, but that by the common consent of the people it has become so, was so considered by foreigners, and that it was best suited to the increased commerce and wealth of England."

J. S. Mill—*On the value of money as dependent upon the cost of production.*—"But money, no more than commodities in general, has its value definitely determined by demand and supply. The ultimate regulator of its value is cost of production. It is evident, however, that the cost of production, in the long run, regulates the quantity; and that every country (temporary fluctuations excepted) will possess, and have in circulation, just that quantity of money which will perform all the changes required of it consistently with maintaining a value conformable to its cost of production."

Of money considered as an imported commodity.—"In so far as the precious metals are imported in the ordinary way of commerce, their value must depend on the same causes and conform to the same laws as the value of any other foreign production. Money, then, like commodities in general, having a value dependent on, and proportional to, its cost and production, the theory of money is, by the admission of this principle, stripped of a great deal of the mystery which apparently surrounded it."

5. The conclusions of these writers have never been controverted, nor the soundness of their theory, that the value of the precious metals is dependent on the cost of the production of them.

6. It would appear, therefore, to follow that, in the main, the historical fluctuations of the market value of the metals gold and silver, in the proportion one has borne to the other, is the measure of the variation of the comparative cost of the production

of each, and confirms, with regard to these two substances, a theorem which universal experience commends, viz., that NO TWO DIFFERENT SUBSTANCES CAN BE PRODUCED FOR ANY LENGTH OF TIME ON PARALLEL LINES OF COST.

7. If this theorem be true with regard to the cost of the precious metals, bi-metallism is an unnatural and unscientific system which cannot possibly be established.

8. The unsoundness of the bi-metallic system is evidenced by the admission of its advocates that it cannot be adopted unless it becomes universal; but would the metal-producing countries, such as Australia, consent to it?

9. Bi-metallists must prove that the cost of production has no effect upon the value of the precious metals as circulating media, and those among them who say that it costs as much to produce an ounce of silver as it does to produce an ounce of gold, appear the most consistent, however erroneous they may be.

10. The more simple the laws affecting the currency, and the more the ebb and flow of the standard metal is left to automatic action, the better for the internal and foreign trade of that country.

11. To make a law which would act against nature cannot be the desire of bi-metallists, and could never accomplish the object for which it was intended.

12. If all the nations using metallic currency embraced bi-metallism at once, the proportion in the currency being fixed at one part of pure gold to fifteen and a half parts pure silver, there would commence an immediate debasement of the coinage of this country; and in process of time a higher range of prices from such action would ensue, which would be injurious to fundholders and persons

enjoying fixed sterling annuities or incomes, from whom, as well as from others, a complaint would proceed that they were being impoverished by law.

13. Even by legalizing bi-metallism it would not follow that contracts would invariably be made on either gold or silver; one metal only might be specified.

14. Under an universal bi-metallic system what would be the relative quantities of production, and what the ratio of cost of production of gold and silver, at which the production of one of the metals for currency would cease? Would excessive quantities of gold, in the ratio of one part of pure gold to ten parts of pure silver, cause the production of silver to cease, or would excessive quantities of silver, in the ratio of one part of pure gold to twenty parts of pure silver, cause the production of gold to cease?

15. Bi-metallism would impose a tax on the general public in the nature of a monopoly of a most unjust kind, whereby the producer of the cheaper metal of the two on the established ratio would command the same value as the producer of the dearer metal.

16. The variableness of a measure of value under the mono-metallic system is great, productive of loss and constant injury: the variableness under the bi-metallic system must prove eventually considerably greater.*

* This paper was read to the late Professor Stanley Jevons before it was printed in 1882, and was approved by him. The following is an extract on it, from a note received from the late Professor Bonamy Price, in November, 1882:—"Thanks, so many, for the paper you have sent me. It is excellent. I wish it was hung up in the study of every bi-metallist in Europe: it could not but do him endless good. The quotations are admirable." The late Professor Jevons informed Mr. Norman that he had argued against bi-metallism with Mons. Cernuschi for hours without producing the slightest effect. He despaired of converting the adherents to the Local Dual Standard theory.

CHAPTER IX.

WHAT IS MONEY?

SYLLABUS OF AN INFORMAL ADDRESS WHICH MR. NORMAN GIVES UPON MONEY IN ANSWER TO THE FOLLOWING QUESTIONS.

ANSWERS to the following six questions:—I. What is Money? II. What is a Pound? III. What is Norman's Unit of Weight System? IV. What is the meaning of the Foreign and Colonial Exchanges? V. What is Bi-Metallism? VI. How does Money do its work?

I. WHAT IS MONEY? It is an important truth of political economy that the introduction of either a monetary or a currency medium in effecting interchanges of substances and services does not affect the conditions of barter. Barter is the exchange of value-giving factors, that is, past and present labour of body or mind, in any two things or services; with or without the unearned increment. Such interchanges under the laws of supply and demand, are the conditions of barter. Both monetary and currency systems, of whatever nature, are moulded to the conditions of barter. The world has had most pronounced evidence of the truth of this law since the dislocation between gold and silver in 1873. (See J. S. Mill, Book III., Chapter vii., last paragraph.)

Views of political economists, bankers, and traders, as to what money is and what it is not. J. Locke defined money in the British Isles as gold,

silver, and copper coins. Abraham's practice with money on payment for his wife's burial cave. Weight and metal money necessary combinations. Norman's limitation of the term Money to the standard substance appropriated to currency purposes. Explanation of definition: Two prime factors to constitute true money—1. A measure of value. 2. A means of payment. No true money without both factors. All true money is currency, but all currency is not true money. Gold is the only true money in the British Isles in the shape of coins, and bullion as security for the encashment of notes, or promises to pay the money on demand. Silver and copper coins, and notes, are only tokens of, and promises to pay, true money.

II. WHAT IS A POUND? Three pounds in the world. The Egyptian 131·1749, 875 fine in 1000 parts, 114·7781 troy grains of fine gold. The British pound 123·274, 916·667 fine in 1000 parts, 113·0016 troy grains of fine gold. The Turkish pound 111·3598, 916·667 fine in 1000 parts, 102·0804 grains of fine gold. A British pound is 113·0016 troy grains of fine gold. Any smaller weight of fine gold would not be one British pound. One troy grain less in weight than 113·0016 troy grains of fine gold would not be one British pound, but the sign for it in the English language would be nineteen shillings and 9·876137 pence. Abraham's practice of weight of true money, or measure of value, is pursued throughout the East and by all dealers in standard metal, whether in the form of bullion or of coins, throughout the world. If true money circulated by weight alone, any weight short of each country's chief money of account at Mint issue weight must pass for less than it was intended to be worth. Value-giving factors in 112 troy grains of fine gold less than the value-giving factors in 113 troy grains of fine gold.

III. What is Norman's unit of weight system? The renowned numismatician, Thos. Snelling, gave in 1766 the British signs for weights of British standard gold, ranging from $\frac{1}{4}$ of a troy grain to 1 lb. troy. Standard gold varies in different countries from 875 to 916·667 parts of fine gold in 1000 parts. Norman's unit of weight system consists of attaching signs to weights of fine gold and fine silver as each country possesses gold or silver standard measures of value embodied in its chief money of account. As for instance, 2·123863 pence is the sign for 1 troy grain of fine gold in the language of the British Isles; as 22·32 centimes is the sign for 1 troy grain of fine gold in the language of France and in that of other Continental countries where the weight of fine gold in the franc forms the chief money of account and measure of value. Illustrations of the power which this unit of weight gives to students of money, to dealers in true money, to merchants, and to travellers. In Norman's book upon the exchanges, signs will be attached to weights of fine gold, ranging from 1-64th of a penny or 1-15360th of a pound to £1, or ·007356875 of one troy grain to 113·0016 troy grains.

IV. What is the meaning of the foreign and colonial exchanges? Mr. Goschen's book upon the foreign and colonial exchanges, written in 1864, is very valuable; but it is not sufficiently upon the root of the subject. Error of calling a premium a discount and a discount a premium, resulting from the present unscientific method of quoting the foreign and colonial exchanges. Between two countries, that originating the transaction should quote for the whole chief money of account of the other country. For instance, instead of £ in the British Isles for *f*.25·22*c*. in France, it should be 9 and $\frac{1}{2}$ pence for a franc. Instead of a rupee in India for 1*s*. 6*d*., in the British Isles, it should be Rs. 13. 4. 3 pies for

a pound. "The Foreign and Colonial Exchanges" with the words added, "of gold, silver, and inconvertible paper," would have thrown more light upon the subject than at present exists in the world. In monetary systems the weights of the standard substance are everything. Definition and mechanism of the Foreign and Colonial Exchanges. William Horsley on "A masterly skill in Bullion and Coin," in 1753. No reason for Sydney Smith's dictum that "currency and the exchanges, next to love and religion, fill our lunatic asylums." Duty of the State to remove the ignorance that led to it.

V. WHAT IS BI-METALLISM? It is an attempt to make a true standard measure of value, and means of payment, by the combination of two substances at a definite legislative fixture of relation between the weights of them. If successful for a time the result would be:—(1) Injustice to those interested in deferred monetary obligations, to the poor man as well as to the rich man. (2) The British Isles would be open to silver produced perhaps at the proportionate cost of 80 parts of silver to one part of gold to be paid for by securities or land, &c., at the proportion of $15\frac{1}{2}$, 16, or 20 parts of silver to one of gold as might be fixed by law. This might yield to the silver-producing countries profits of some hundreds per cent. (3) Probable displacement of gold as a monetary medium throughout the world within a few years, through the operation of the Gresham law, which is that the cheaper will drive the dearer circulating medium out of a country where there is any attempt to make one standard out of two metals. The world's present production of silver is double what it was in 1873, notwithstanding a very heavy fall in its value measured by gold. The recent estimated gold cost of one year's production of silver 44 parts of silver to one part of gold by Prof. Roberts Austin of the British Mint in

London; $35\frac{1}{2}$ of silver to one of gold by the U.S.A. Mint authorities. Some experts estimate the present comparative annual average cost of the two metals at 80 of silver to one of gold. These proportions give the following alsolute pars :—

Parts of Silver to 1 part of Gold.	Troy grains of pure Gold for 444 Troy grains of fine Silver or a British Standard Troy ounce.	or Pence per British Standard Troy ounce.	Troy grains of fine Gold for 166 Troy grains of fine Silver.	or Pence per Rupee.
$15\frac{1}{2}$	23·64	60·84	10·64	22·59
16	27·75	58·93	10·31	21·89
20	22·20	47·15	8·25	17·52
$35\frac{1}{2}$	12·50	26·55	4·65	9·87
44	10·09	21·43	3·75	6·53
80	5·50	11·68	2·06	4·37

A French silver franc contains $15\frac{1}{2}$ times more weight than the French gold franc. The United States silver dollar contains 16 times as much silver as the United States dollar contains gold. Three courses open with reference to the world's two monetary intermediaries, and measures of value, gold and silver. (1) To abolish them. (2) To let each metal find its value in proportion to the contents of its value-giving factors. (3) To get a temporary universal enforcement, by legislative enactments, that both gold and silver shall be received in unlimited quantities by all mints and be made unlimited legal tender at fixed relation of weight between the two metals. Bi-metallism is unnatural, unscientific, and unworkable if the following propositions are true. 1. Gold and silver are different substances. 2. No two different substances can be exchanged for any length of time upon parallel lines of quantities or values, neither

can they be produced for any length of time upon parallel lines of cost.

VI. How does money do its work? This question was asked and answered by Bonamy Price in 1882, and his opinion was confirmed by Professor Dr. Soetbeer. True money does its work by means of its value, in their opinion. If it does not thus accomplish it, what objection can be raised to the destruction of all mint machinery and the adaptation of the buildings to other objects. Abandonment of metal and everything of value for monetary purposes. Contentment with pieces of paper as final instruments of payment, taking care that the quantity theory regulates each country's manufacture and circulation of them?

CHAPTER X.

TWO LETTERS TO THE "RAILWAY TIMES" ON GOLD RESERVES IN THE BRITISH ISLES.

Adequate Available Gold Reserves for the British Isles.

February, 1891.

Not a few open questions of very great importance connected with money and credit instruments should be closed for ever. The world has not made the progress it should have done in this direction since 1873. During the intervening period the opportunity has been greater than was ever before presented in the fall of the gold price of silver and the rise in the silver price of gold.

The Royal Gold and Silver Commission was appointed on September 23rd, 1886, and it closed its labours in January, 1889. It must be said of this commission that it darkened counsel without throwing any light upon the subject of true money. Among its minor errors it jumbled up value and price to the sore bewilderment of students of money. It spoke of gold prices in India and silver prices in the British Isles when there are no such things. It made a hop, skip, and a jump of the value theory of money and spent itself upon the quantity theory. But the tremendous damage it did was to parade credit and money or the standard substance as equivalents; thereby perpetuating the worst teaching of the unsoundest school of thinkers upon money. Another monstrous delusion, to correct which it had evidence in a concrete

form before it, is that advanced by the mono-metallists in their separate report on the cause of the fall of prices since 1873, in the words—"We believe the fall to be mainly due, at all events, to circumstances independent of changes in the production of or demand for the precious metals, *or the altered relation of silver to gold.*" One of the most active of the mono-metallists adds a memorandum of his own to the same effect. That the rupee had behaved badly and had to mend its manners was taught by an authority. And because Bagehot had said it, vast flows of silver to India were expected to raise prices there. Whereas the adjustment had taken place by a fall in gold prices of articles from silver standard countries *as the fall in the gold price of silver took place*—or, more properly speaking, as the silver price of gold rose in silver standard countries. And this was known in London by every trader with silver standard countries. No flow of silver took place, and none should have been expected.

The matter of an adequate reserve of standard substance is no open question in this country. All admit that the present reserve is inadequate, and the Chancellor of the Exchequer, to the satisfaction of the nation, has recognized this and foreshadowed means for largely increasing it.

I hope to produce within the next few months a work upon the principles and practice of the foreign and colonial exchanges on my unit of weight system, with aids to the construction of a science of money. You will perhaps kindly allow me to anticipate that work by the following remarks upon the most important subject of the moment—viz., that at the head of this letter.

A cardinal error which has led to untold misery in the world is to believe that because under certain conditions a piece of paper of no cost does the work

of money, which is of great cost, it is therefore money. Credit taking the shape of instruments, and doing the work of money as its shadow and substitute, is necessary, and no man ought to deny the benefits which it has conferred, and must always confer, upon the world. But it is a most dangerous tool to misunderstand and wrongly handle. Men must trust each other to live, and so long as they trust each other with regard to their solvency credit instruments will be used, even though Governments do everything, short of acting unjustly, to discourage their use. This being so, the great question of the day is:—*Is it a duty to maintain a sufficient reserve of gold in the British Isles?* A reserve of gold is required for three purposes—(1) international payments in connection with trade; (2) to meet credit instruments in time of distrust, and especially the distrust of a legal tender note; (3) to satisfy the legitimate requirements of financiers, bullion, coin, and exchange dealers. Let it be assumed that it is necessary for the possession and preservation of a sound monetary system that there should be effective and readily available reserves of the standard substance. To secure such, little can be learned from the monetary systems of other countries. No two countries are alike; and what would suit in one country would not suit in another. In many respects there is no country in the world which affords a worse example for the British Isles than the United States of North America.

In the British Isles at present the reserve of gold is due to the use of bank-notes—notes of the Bank of England and of country banks—payable in gold on demand. The distinction between a Bank of England note and a country bank note is that the first cannot be refused when tendered in payment, the second can be refused. Suppose,

through an alteration of habit, there should be no demand for bank-notes, and that it should still be considered necessary to hold reserves of gold for the purposes mentioned, the question arises, *Whose duty would it be to create and keep such reserves?* The producers or consumers in the British Isles? or the aristocracy and the landed interest? or the foreign and colonial merchants? or the financiers? or the bankers? or the Government at the expense of the whole people? Some, no doubt, would ask why there should be any reserve at all. Why should the standard substance be moved about the world? Is it not sufficient to know that it is in the bowels of the earth? Such questions appear about as sensible as the statement that the standard substance can do duty in two different places at the same time. This is a strange Australian proposition which appeared in the *Times'* money article on December 15th, 1890. When will Governments, corporations, and individuals cease the attempt to practise jugglery with money? True money can no more be in two places at the same time than a conjurer's pocket-handkerchief can be both in your pocket and in mine. Suppose the people of a country found wheat a good measure of value and means of payment, and the Government legislated to give effect to the same. Could the same wheat be both a currency reserve in a bank and a loaf on the family table? To assert that it could be is just as reasonable as to affirm that a gold reserve in a bank in England can act also, at the same time, in a bank in Scotland or anywhere else, or that gold coin can be retained in England and at the same time assist the harvest currency in Scotland. Because shadows of the standard substance are emitted, which are properly promises and orders to pay gold or silver as each may be the standard, and these float about the world and in ordinary

circumstances of monetary systems do the work of true money through the means of debit and credit entries in books, and the fulfilment of the promise or order is not claimed, will the fulfilment never be required? 1797 supplies the answer to the question. The essence of a true and efficient monetary reserve *for all times* is—that it is the very substance promised to be given in exchange on the face of the shadow or instrument of credit. *Nothing can act as a true and efficient monetary reserve which is doing more than one duty.* The reserve cannot be making money or interest besides acting as a reserve. Therefore all descriptions of stocks, titles to properties, &c., are useless as substitutes for the standard substance in the times of distrust of credit instruments. There would either be no market for them at such a period, or they would be realized at ruinous prices, vastly less than those at which they were rated as a reserve.

The scheme lightly sketched by the Chancellor of the Exchequer at Leeds, on the 28th January, 1891, must be propounded in all its details before it will be possible to form a judgment upon it. In the meantime the writer would ask, if filthy notes can be endured in England contrary to all the proclivities of the people; or even if the cost of clean notes should prove as expensive as the abrasion of gold, the reserve of gold against the notes being appropriated to those notes, how could the gold be applied to a foreign drain? If by the encashment of such notes alone the means for the drain could be furnished, what amount of notes is likely to be presented with such a purpose? If the gold were released upon any other conditions than the encashment of the note could it be properly called misappropriation of funds?

It is only a few years since an American "gold bug," an emissary from the Government of the

United States of North America, visited this country and Europe, to ascertain the practicability of bringing about the rehabilitation of silver; in other words, to perpetuate for as long as possible the fictitious value of silver. It is a gratifying sign of the times that this able and deservedly respected statistician, Mr. E. Atkinson, of Brooklyn, is now foremost in impressing upon his countrymen the importance of the *quality* of their money, and every one who has truth at heart must sincerely hope that he is not too late in the work to which he has awakened.

Mr. Goschen and Reserves of Gold in the British Isles.

December 12*th*, 1891.

Mr. Goschen's project is accurately recorded in the *Journal* of the London Chamber of Commerce for this month as it was presented in his speech to the London Chamber on the 2nd instant and in his letter to the Governor of the Bank of England.

The test of a monetary system is the distrust of the State note or other note, such as the Bank of England note, which has the same force and obligation as a State note.

The oldest inhabitant of this country has had no experience of the distrust of the Bank of England note. The last distrust occurred in 1797, and it resulted in the loss of the monetary system in the British Isles and the substitution of a currency system consisting of inconvertible paper which lasted from 1797 to May, 1821.

I ask whether one man among 5000 business men understands the difference between the suspension of the Bank Act and the distrust of the Bank of England note.

The difference between the suspension of the Bank Charter Act and the distrust of the Bank note is as great as the difference between an

effective monetary system and an inconvertible paper currency system.

There does not appear to be any allusion to this great test of an effective monetary system in Mr. Goschen's speech or letter.

As to whether the suspension of the Bank Act during a period when other credit instruments are distrusted, whilst the utmost confidence exists in Bank of England notes, is to be left to the discretion of the State or lodged with the Bank of England under given conditions, is of infinitesimal importance compared with the provision for the encashment of Bank of England notes in the times of distrust of them.

The issue of notes payable on demand, which it is not in the power of the payee to refuse, is a State function, and the State is responsible for the encashment of them. And in this country it is so through the Bank of England, which is the agent for the State.

Care must be taken that this matter of the suspension of the Bank Charter Act does not tend to discourage endeavours to find the best method of providing a greater reserve of gold than this country at present possesses.

The following propositions would appear to demand most careful consideration at the present time :—

Whether the time has not come for the alteration of the present mode of issuing notes payable on demand in the United Kingdom of Great Britain and Ireland.

Whether, if the present method is be continued, it is reasonable to expect the upkeep of an adequate reserve of gold without a corresponding national charge for the same.

Whether under Mr. Goschen's scheme the anxious watching and record of 100,000*l.* or less

of gold into or out of the Bank of England would not continue.

Whether it would promote a more stable rate of discount.

Whether the Government by its own monetary operations could not vastly promote the circulation of 1*l.* notes.

Whether the issue of 1*l.* notes will not place in the hands of a vastly increased number of people the power to enhance the difficulty and distress that would ensue upon the suspension of cash payments.

Whether it is not due to those who consent to take these 1*l* promises to pay gold in exchange for gold that gold should be specially retained for the encashment of such promises.

Whether it is prudent that provision should be made whereby it is expected that the stock of gold in the country should be depleted to the extent of 5,000,000*l.*

Whether the 1*l.* notes, like the 5*l.* and other Bank of England notes, would not be legal tender which no payee could refuse.

Whether the 1*l.* notes would be encashable at more places than the other notes of the Bank of England.

Whether, if the 1*l.* notes are kept clean, the upkeep of them would not be as costly as the abrasion of gold, resulting from the ordinary wear and tear of the coin.

Whether disease is propagated by bank-notes which are in a filthy state.

Whether in the view of warfare it would not be better to leave the gold in the pockets of the people than to take it and provide for part of it going out of the country.

Whether in the event of war patriotic feelings could not be depended upon to supply gold even

to the melting down of plate and jewellery for the preservation of the Empire.

Whether the use of such a stupendous amount of credit instruments other than State or Bank notes in this country does not point to the importance of retaining gold for every note payable on demand which is issued by the Issue Department of the Bank of England.

Whether, if there were no requirement for Bank of England notes, it would not be necessary to have gold reserves to meet the demands of financiers and the ordinary operations of trade.

Whether the state of international indebtedness and trade of this country might not become such as to necessitate a constant flow-out of gold, as the state of India requires a constant inflow of silver.

The writer hopes that these matters for consideration may be of some help in the study of Mr. Goschen's scheme.

CHAPTER XI.

DESCRIPTION OF SHOW CASES ILLUSTRATIVE OF THE WORKING OF THE FOREIGN AND COLONIAL EXCHANGES OF GOLD AND SILVER.

A CASE consists of two tables 51 inches broad by 27 inches in depth, under plate or sheet glass. The gold table contains facsimiles—obverse and reverse—of the pounds of Egypt, the British Isles and the Ottoman Empire : 5 milreis of Portugal, 5 dollars of the United States of North America, 5 pesos of the Argentine Republic, 10 milreis of Brazil, 10 guilders or florins of the Netherlands, 20 crowns of Denmark, 20 marks of Germany and 20 francs of France, with gross and fine weights in grams and troy grains, and the signs for a gram and a grain of pure gold in the coins at mint issue weight of the coins mentioned and the Uruguay 5 peso piece : also the fixed pars of exchange between these 12 gold monetary systems, embracing 300 equivalent exchanges. Information on each of the 12 monetary systems together with the following instructions.

"The objects with which these tables have been made are :—(I.) To furnish a safe foundation for the construction of a science of money. (II.) To teach the world to confine the idea of money, as it is at present used among a vast proportion of peoples, to weights of pure gold and pure silver; gold here, silver there, both in one place nowhere. (III.) To provide a ready reference for all traders to the world's pars of exchange, and the means to

arrive at the limits to the fluctuation of the exchanges, which are based upon gold and silver."

"NORMAN'S UNIT OF WEIGHT SYSTEM.—Each country has a table of weights for the weighing of gold and silver. For this purpose 308,000,000 people use for their foreign commerce the tola, or 180 troy grains, and its parts; there are 257,000,000 people who use the kilogram, or 15432·34874 troy grains, and its parts; and 112,000,000 people who use the troy ounce, or 480 grains, and its parts. Each country has its own equivalents for the weights of all other countries. There are signs for weights, such as 15·43235 troy grains for one gram; 1 tola for 180 troy grains. One gram, 15·43235 grains, and 32·92234 dhans, are signs for the same weight in most countries of Europe and in South and Central America, in the British Isles, Australasia, and North America, and in India. Each country has a sign for the smallest weight of its standard substance or measure of value. The sign for one gram of fine gold in the franc is 344·447 centimes, because the weight of fine gold in the franc on issue from the mint is ·29032 of a gram; and 100 centimes, which make a franc, being divided by this gives 344·447. The sign for a grain of fine gold in a sovereign is 2·123863 pence, because the weight of fine gold in the pound on issue from the mint is 113·0016 grains; and 240 pence, which make one pound, being divided by this gives 2·123863. The sign for a ruttee of fine silver in the rupee is 2·16826 pies, because the weight of fine silver in the rupee on issue from the mint is 88·55 ruttees; and 192 pies, which make a rupee, being divided by this gives 2·16826. Possessed of the sign of the smallest weight of gold, the multiplication of a given weight of that metal by the sign used in any country gives the value in that country; and the parity of such gold coins, as it

may be applied to. The same with regard to silver."

"EXAMPLE.—Desired to know the par of exchange between the British Isles and France. The sign for a gram of fine gold in France is 344·4475 cents, and one sovereign or pound weighs 7·32244 grams; 7·32244 multiplied by 344·4475 gives f. 25·2215 as the par. This is vastly shorter than methods in use."

"The world should realize that it is the intention that money, which is the standard substance appropriated to currency purposes, should do its work by means of the value-giving factors it contains; and that in the opinion of some thinkers during the past quarter of a century, notably the late Oxford Professor of Political Economy, Bonamy Price, and Professor Dr. Ad. Soetbeer, the present eminent Professor of Political Economy at Gottingen, it does ordinarily accomplish its work by means of its value. If gold and silver as money do not ordinarily accomplish their work by means of the value-giving factors which they contain, it should be stated what are the objections to the two following propositions:—(I.) Destroy the world's mint machinery, or devote it, with the buildings, to some other object than for monetary purposes. (II.) Let each State issue pieces of paper, which are never intended to be convertible into anything, to facilitate its interchanges or barter. This would relieve all financiers, bankers, and others who are pre-eminently interested in monetary systems, from having anything to do with gold and silver as money. The banking institutions of the world could then confine their operations to receiving and paying bits of paper, and making debit and credit entries in books for their customers. It would be no longer necessary for peoples who do not produce gold and silver to part with their value-giving

factors for these metals as money, and it would cease to be moved about the world as such. Thus the expenses attendant upon the obtaining, coining, and moving gold and silver about the world for monetary purposes would be saved."

"The world should know that a standard of value and a means of payment is a conditioned substance by the consent of peoples, by practice, and by legislative enactment—the enactment providing that the substance must be received by the State in payment of obligations to it, or at mints, in unlimited quantities from any person or place; be fitted by the State for monetary purposes, and be made unlimited legal tender. There are 1002 signs for weights of gold and silver in these two tables. These signs should be reached through the weights of fine gold and fine silver. The exchanges are mostly worked by signs in a rule of thumb manner, and the things exchanged, namely definite weights of fine metal, are never thought of. This should not be. The mind should be occupied with the weight, and the sign should follow it. Each column contains 12 or 13 signs for the same weight. Take the columns under British pound. Col. I. gives 1*l.*, and its equivalents in the world's 11 other signs to the fourth decimal place. Besides, it shows the 11 equivalents for 10,000*l.* Col. II. gives the signs in each country's moneys for the weight of pure gold in one pound. Col. III. the same for the pure gold represented by one shilling. Col. IV. the same for the pure gold represented by one penny. Perhaps prices and rates of exchange may some day be quoted in grams of gold in one country, and grams of silver in another. The signs, at present, mean weights of pure gold or pure silver in all countries possessing scientific and effective monetary systems. Let no one shrink from the examination of the somewhat formidable-

looking array of these signs for weights of gold and silver. The mastery of the exchanges of weights of gold and silver, which is hidden under signs; and the knowledge of the effect of the exchanges of gold, silver, gold or silver, and inconvertible paper upon the world's prices, are the two fields of study from which the best material can be drawn for the construction of the science of true money. These 1002 signs are for the mint issue weights of pure gold and pure silver in the world's 25 gold and silver moneys of account, and 26 fractions of the same."

"Construction of the Tables.—Given the weight of fine metal in each money of account, it is a mere matter of division of the weights by each other to determine the proportion established between two moneys of account. Thus the weight of pure gold in one British pound is 7·3224 grams; in the franc it is ·29032 of a gram: 7·3224 divided by ·29032 shows that the sign in francs for 7·3224 grams of fine gold is f. 25·2215. No. 12 of column I., under the head of the British pound, shows this. The second column shows the signs for the weights of fine metal in one whole money of account, and the signs for the equivalent weights in a part, or more than the whole of the other 11 or 12 chief moneys of account in use in the world. The third column contains fractional weights of the second column, and the signs for the same. The whole of these seventy-six columns can be approximately correctly worked out, by any properly instructed youth, from any first column of the two tables. Thus: desired to know the fine weight of a dollar of the United States. Take column VIII. A Brazilian milreis weighs ·82178 of a gram, under this will be found that ·5461 of a dollar equals one milreis; ·82178 divided by ·5461 gives 1·5048 as the fine weight of an American dollar. It is desired to know the

weight of fine silver in a Mexican dollar. Under Shanghae, the weight of a tael is 33·2455 grams of fine silver; this divided by 1·3607, which is the Mexican equivalent for one tael, gives the weight of fine silver in the Mexican dollar as 24·434 grams. The simple test of accuracy of the three columns is the multiplication of the weight over the third column by the fixed sign for a grain in each country."

"PARS OF EXCHANGE are signs in the world's standard moneys of account for—(I.) The same weight of gold. (II.) The same weight of silver. (III.) The equivalent weight of gold for silver or of silver for gold, determined by the world's gold prices of silver and silver prices of gold. Pars of exchange are also signs for the rate of exchange of inconvertible paper for inconvertible paper, or of inconvertible paper for gold or for silver. In effect, at present, it is not at the option of the payer to meet a foreign bill of exchange with either gold or silver: it must be gold in gold standard countries, and silver in silver standard countries."

"COINAGE AND TRANSMISSION CHARGES.—The fluctuations of the rate of exchange of gold for gold is limited to the charges for coinage and transmission of the gold. These charges where known are appended. When the British Isles are sending gold to France a greater weight of gold would be paid for a bill on France than if France were sending gold to the British Isles, owing to these charges, and *vice versa*. There are 200,000,000 peoples and more whose currency consists of inconvertible paper. Russia, Austria, Hungary, Italy, all Central and South America, except Mexico, are at present in this condition. Against these countries an asterisk is placed. These tables and observations cannot afford assistance in elucidating the exchanges between such countries. Their currencies are of

autocratic register character, but some day they may be brought within the working of these tables. In countries where the promise to pay is met by the substance promised at due date, it is the indication of the possession of an effective monetary system. The exchange of metal between such countries can only deviate slightly from par ; that is to the extent of the charges mentioned."

"EXCHANGE OF GOLD FOR SILVER.—The sign for a weight of gold to be given for a standard silver money of account of any country is determined by the gold price of silver for the day. Say that the price of silver in London is 44 pence per British standard ounce, or 444 grains of pure silver, and it is desired to know the absolute par of exchange with India for the rupee, which contains 165 grains of fine silver, on the issue of it from the mint: $\frac{165}{444}$ of 44 pence gives the answer as 16·35 pence, or 7·699 grains of fine gold for the 165 grains of fine silver. This establishes a relation between gold and silver of 1 part of gold to 21·42 parts of silver."

"THE WORLD'S TWO CHIEF MEASURES OF VALUE.—The world has two measures of value and means of payment, gold and silver. At one time during the past fifty years silver has been thought to be the best and most uniform standard. At present gold is considered to be such. Should the comparative average yearly cost of the production of these two metals become in the relation of the weight of 1 part of gold to 10 parts of silver, a scramble for silver would set in among the States whose laws aim at the union of two metals to make one standard ; and an uneasiness would be experienced in gold standard countries that the best standard was not in their possession. Political economists do not advocate one standard for the whole world in its present state. No advocacy could bring it about. It is impracticable. Peoples must take that which they

can get, and 200,000,000 of them, without any effective money standard, use bits of paper as their intermediaries in exchanges."

"THE COMPARATIVE ANNUAL AVERAGE COST OF THE PRODUCTION OF GOLD AND SILVER. — This average exists, and it exerts a most powerful and disturbing influence upon the world's finances and current prices, though it seems as if it cannot be tabulated. The British Royal Gold and Silver Commission of 1886-9 gave returns of the estimated gold cost of the world's production of silver for one year, which led to the statement of the different views upon the subject held by the assay master of the British mint in London, and the master of the mints in the United States of North America. The former made the gold cost of silver 1 part of gold to 44 parts of silver, and the latter 35·3 parts of silver to 1 part of gold. The comparative average cost of the production of each metal would be a totally different calculation. The writer's investigations into this upon the cost of the production of gold in California and silver in Colorado during two years, upon figures given by the mint master of the United States America, satisfies him that the present yearly average comparative cost of the production of the two metals is something like double the above figures of silver for one of gold."

"THE COMBINATION OF GOLD AND SILVER, AT A FIXED PROPORTION OF WEIGHTS, TO FORM ONE STANDARD OR MEASURE OF VALUE.—The following propositions have kept the writer's mind free from error upon this subject:—(I.) Gold and silver are different substances. (II.) No two different substances can be exchanged for any length of time on parallel lines of quantities or values; neither can they be produced for any length of time on parallel lines of cost. The writer has found that, with very rare exceptions, the truth of these statements is imme-

diately admitted, and the conclusion necessarily follows that local dual standards are unnatural, unscientific, and unworkable."

"MONEY AND ITS WEIGHT.—The essential quality of money is the value-giving factors embodied in it, or in other words, its cost of production. This quality is associated with weight in gold and silver money. The weight therefore of gold and silver bullion and in coins is of the first consideration. Paramount importance is given to this in the writer's works, and will appear in his 'Principles and Practice of the Foreign and Colonial Exchanges of gold, silver, and inconvertible paper, etc.' The two chief authorities on weights followed in the construction of the tables are Noback, the German compiler (probably the most accurate in the world), and the master of the Calcutta mint, whose weights given in 1873 are of great value. Besides these, the works of Costes, the French authority, the master of the U.S.A. mint, in his report of either 1886 or 1887, W. A. Browne, LL.D., W. Nelson-Smith, L. Bartlett-Amati, Tate and Haupt have been consulted. The distinctiveness of peoples' coins is of vast importance. The designs and sizes should be different. The fine weight upon issue from the mints should be impressed upon the reverse of the coins. The Japanese thus treat their silver yen; and the Chinese are likely to follow their example. Weight is everything with money changers among these people, the inhabitants of India, throughout the East, and in fact all over the world."

"EFFECTS OF A CHANGE IN THE GOLD PRICE OF SILVER AND THE SILVER PRICE OF GOLD.—Attention must be paid to the effect which the working of the exchanges of gold for silver and silver for gold has upon the world's prices of commodities, etc. Everything which is interchanged between two countries, one of which has an effective gold standard mone-

tary system, and the other an effective silver standard monetary system, is as good as weighed out more than once against gold in one country and against silver in the other country between its production and consumption or use. As an illustration, assume that to-day the world's market relations of silver to gold is in the proportion of the weight of 16 parts of silver to one part of gold; that to-morrow it becomes 20 parts of silver to one part of gold. That both to-day and to-morrow a pound of tea can be purchased in Calcutta at one rupee or 165 grains of fine silver. To-day the exchange for the rupee would be 10·312 grains of fine gold or 21·91 pence for one rupee. The tea if sold at this price in London would not give any profit. To-morrow the exchange for the rupee would be 8·25 grains of fine gold or 17·52 pence. If the tea could be sold for 21·90 pence per lb. the profit would be 25 per cent. But competition among the sellers reduces the price to the ordinary profit. There are writers and talkers about money who are candid enough to admit that they know nothing about the Foreign and Colonial exchanges! Without "a masterly skill in bullion and coin" it is impossible that they should acquire this knowledge, and without this knowledge no one is qualified to discuss the subject of money. Miss E. C. Sharland's book, 'Coin of the Realm: What is it?' published and sold by Waterlow & Sons, Ld., London, aided by these tables, should enable them to thoroughly understand the subject. If it is desired to know what information the craft of the bullion, coin and exchange dealer embraces, it may be found in a 'Colloquy upon the Science of Money,' published and sold by W. H. Allen & Co., Ld., London. The writer, believing that a knowledge of the foundation of the science of money can be acquired by young people through the comprehension of the weights and signs for the same and the instructions

presented in these tables, earnestly hopes that the unit of weight system may immediately become a branch of the world's scholastic teaching. He is confident that to a large class of minds it would vastly add to the interest of geography, with which it might properly be taught. He would venture to predict that within a few years of such instruction, the present disgraceful universal ignorance upon the subject would be looked upon with astonishment."

"The writer desires to offer, briefly, his grateful thanks to the authoress of 'Coin of the Realm: What is it?' to the keeper of the British standards, to the secretary of the London Chamber of Commerce, to the editor of the *Bankers' Magazine*, published in London, to the secretary of the Bankers' Institute in London, to the assay master of the British mint and his assistants, to the assistant keeper of coins and medals at the British Museum, to the librarian of the Colonial Office, to the assistant librarian of the Foreign Office, and to the numerous bankers and exchange dealers for the assistance which they have rendered; also to the secretary of the British Board of Trade, to the political economists of Germany, France, and the United States of North America, for the encouragement received during his investigation into the subject of money."

"These tables are especially commended to the immediate and careful attention of the world's statesmen, legislators, political economists, and teachers in colleges and schools. The writer declines to believe that any one of intelligence is too old to understand them or could fail to arrive at the logical conclusions to which they point. If they should lead to the construction of a science primer of money by some able and trusted authority, they will not be without their use in the world."

The Silver Table contains facsimiles—obverse and reverse—of the following dollars or pesos, the Trade,

Mexican, Javanese, Japanese or yen, Philippines, Peruvian, rouble of Russia, tical of Siam, florin of Austria-Hungary, rupee of India, kran of Persia, piastre of Tunis, with gross and fine weights in grams and troy grains and the signs for a gram and a grain of pure silver in the coins at mint issue, weights of the coins mentioned and of the Shanghae tael. Also the fixed pars of exchange between these thirteen silver monetary systems, embracing 429 equivalent exchanges. Information upon each of the thirteen monetary systems together with the following instructions:—

"Some comments in the gold table are applicable to this table. The term Money must be confined in the civilized and semi-civilized world at the present time to either gold or silver, as each substance is conditioned and appointed as a measure of value and a means of payment. Promises to pay money are not money. The world has monetary systems and currency systems. A gulf separates the two."

"The construction of these thirty-nine columns of silver and thirty-seven columns of gold signs for weights of fine gold and fine silver contained in the world's twenty-five gold and silver-standard moneys of account at mint issue weight is of the utmost simplicity. The roundabout manner in which cambists and books professedly designed to reach the same end—and which they never attempted exhaustively to complete—must henceforth cease to be a puzzle to human intelligence. No youth should leave the world's schools without being a master of the exchanges of gold, silver, and inconvertible paper. The practice of decimal multiplication and division is all that is requisite to acquire it. Given the weights of fine gold and silver in the world's moneys of account on issue from the mints, or ascertained by weight and assay, and the world's signs to represent these weights is a simple matter of decimal division of these weights. The gold pars are fixed; the silver pars are fixed also. They are

all shown in these seventy-six columns. The exchanges of gold for gold and of silver for silver are exhaustively set forth. The absolute pars of silver for gold and gold for silver are very simply ascertained upon the unit of weight system."

"INSTRUCTIONS FOR ASCERTAINING THE PAR BETWEEN GOLD AND SILVER.—Ascertain the relation established between gold and silver by the market price of silver in a gold standard country, or the market price of gold in a silver standard country. Divide the sign for a grain of pure gold in the gold standard country by this proportion, and the result will be the sign for one grain of pure silver in any silver standard money of account. Multiply the sign for a grain of pure silver by this proportion, and this will be the sign for one grain of pure gold in any gold standard money of account. Take two examples:—(1) Say the price of silver in the British Isles is 44 pence per standard ounce or 444 grains of pure silver. To determine the weight of pure gold in 44 pence, divide that price by 2·123863, the British sign for one grain of pure gold—it is 20·716 grains of pure gold: 444 divided by this establishes a proportion of 21·432 parts of silver to one part of gold. Divide 2·123863 by 21·432, and the gold price of a grain of pure silver is ·09909 of a penny. Say it is desired to know the absolute par between India and the British Isles at this gold price of silver: $\frac{165}{444}$ of 44 pence gives 16·357 pence per rupee. Test this by the unit of weight system. Multiply the rupee, which is 165 grains of pure silver at mint issue weight, by ·09909 of a penny, and the answer is 16·349 pence—a difference of 1·2 per 0/000. (2) For the second example, take the same proportion between gold and silver, viz. 21·432 parts of silver to 1 part of gold. The silver price in Mexico at the mint issue weight of the dollar for one kilogram of gold is 877·17 dollars. The mint issue weight of pure gold in a franc is ·29032 of a gram; there are one thousand grams in one kilogram; $\cdot\frac{29032}{1000}$ of

877·17 dollars gives 25·46 cents for one franc. Test this by the unit of weight system. The sign for a gram of pure silver in Mexico is 4·0928 cents; 21·432 times this sign is 87·71 cents, and it is the price of one gram of gold at this proportion of silver to gold, ·29032 of a gram, the weight of pure gold in a franc, being multiplied by 87·71 cents gives 25·46 cents."

The Limits to the Fluctuations of Exchanges of standard metals are confined to coinage and transmission charges on the standard metal. These tables furnish the means for ascertaining the absolute pars of exchange of gold for gold, gold for silver, silver for silver, and silver for gold. The mode of quoting and working the exchanges leads to confusion and error, as between two countries the rule is that in one country the quotation shall invariably be the chief money of account, and in the other country more or less than the chief money of account: e.g. British Isles, £; France, francs and cents. The scientific method would be the variable weight for the fixed weight: e.g. British Isles, pence for each franc; France, francs and cents for British pound. By this means a greater weight than the par weight would always denote a premium; and a less weight than the par weight would always denote a discount. By the present mode, when a pound, or 7·3224 grams of pure gold, is given for less than 7·3224 grams of fine gold, the rate denotes a premium in the British Isles, and a discount in France. It is evident that if £1 is paid in the British Isles for f. 25 12 c. to be paid in France, the exchange in England with France is at a premium of 4·08 per mille, because 113·0016 grains of fine gold are given for 112·5447 grains of pure gold in France. If in France f. 25 12 c. command a pound in the British Isles, it is evident that the French exchange on the British Isles is at a discount. No expert in the exchanges in London having to pay rupees in Cal-

cutta would think of shipping silver or gold to Calcutta unless he had to pay more for a bill than the transmission, etc., charges on the shipment would cost him. At the rate of 44 pence for 444 grains of pure silver, the par of the British Isles with India is 16·351 pence. The coinage and transmission charges are, say 2·90 per cent. This added to par makes the rate for a rupee, based on coined rupees, 16·841 pence. No one would ship silver to London from Calcutta on this same London price of silver if he could purchase a bill at sight on London, at a rupee for 16·229 pence, because the charge of transmission and sale of the silver would cost $\frac{3}{4}$ per cent. This makes the limit to the fluctuation of exchange between the British Isles and India 3·65 per cent., based upon silver to be coined at the Indian mint. In the most highly civilized States there are practically no coinage charges upon the standard substance. Where coinage charges are operative, the Indian coinage charge of 2 and $\frac{1}{10}$ per cent. is among the highest in the world. Transmission charges of the precious metals have a constant tendency to diminish. Between the most distant ports in the world they would probably not be more than $\frac{3}{4}$ per cent. They are slightly higher for silver than for gold."

"Barter, or the exchange of value-giving factors, with or without what is commonly called the unearned increment, embodied in anything, for value-giving factors, with or without the unearned increment, embodied in anything, is the law of all national and international interchanges. The introduction of a measure of value and a means of payment, or a pure paper credit system to facilitate such interchanges, does not affect the conditions of barter. Gold and silver are under the same laws of barter as copper and tin. The conditions of barter mould prices, whether in monetary or pure credit systems. See J. S. Mill, Book III., Ch. VII. last paragraph.

The world since 1873 has, or should have, learned this from the course of prices of goods from silver standard countries in gold standard countries; resulting from the increased silver price of gold. Statesmen, legislators, and political economists in the British Isles, taught by Bagehot, expected that upon a rise in the gold price of silver, prices would rise in silver standard countries. This prediction was not fulfilled. There was no commensurate rise of prices in silver standard countries. What was lost sight of was that on the fall in the gold price of silver and the rise in the silver price of gold, an immediate adjustment took place by a fall of prices in gold standard countries. This was known by every trader with silver standard countries."

These tables should form the basis of the world's instruction upon the subject of money. The youth of both sexes should thoroughly understand and make them before leaving the schools and colleges of the world.

These cases are at present at—

The London School Board, Victoria Embankment, W.C.
,, Bank of England.
,, London and Westminster Bank.
,, Oriental Bank Corporation, Limited.
,, National Bank of India, Limited.
,, Messrs. Barclay's Bank.
,, Institute of Chartered Accountants.
,, City Liberal Club, E.C.
,, Office of the Assayer to the Bank of England.

And they will soon be at—

The Imperial Institute.
,, India Office.
,, Office of the Keeper of the British Standards.
,, Library of Blundell's School, Tiverton.

J. H. Norman.

22, Lee Terrace, S.E.

CHAPTER XII.

SHORT NOTES ON MONEY AND BI-METALLISM.

A Letter to the London Chamber of Commerce Journal, March, 1892.

Mr. Henry Hucks Gibbs on bi-metallism, and the comparative cost of the production of gold and silver.—Important questions for consideration.

Every one who uses money and is determined to know what it is and how it does its work, should examine himself upon some such questions as are contained in this chapter; and by study make up his mind upon them.

There is nothing easier than to appear fogged, to be fogged, and to fog others upon the subject of money. At present there are no foundation principles upon which to construct the science of money.

I wish, with your permission, to take the opportunity which Mr. Henry Hucks Gibbs's communication to you on the subject at the head of this letter —which appeared in the February number of the Journal—offers, to address a few pointed questions, with the object of promoting thought on the part of your readers who are desirous of understanding bi-metallism, and will take a little trouble to qualify themselves to form an opinion upon it.

I. Do you thoroughly understand the foreign and colonial exchanges of gold, silver, and inconvertible paper? Can you easily work them by means of the unit of weight system? Do you see that these exchanges between countries possessing effective monetary systems—that is, where a paper promise to pay the standard substance is convertible into that substance—are the exchanges of weights of pure metal? Do you perceive the vast difference between an effective monetary system and an in-

convertible paper currency in the effects upon current and deferred obligations?

II. Are you prepared to limit the definition of money to the standard substance appropriated to currency purposes? Do you affirm that money must possess two factors, the value factor and the currency factor, and that the value factor is of far the greatest importance?

III. Do you admit that there are three conditions attached to the standard substance or measure of value and means of payment:—(*a*) The substance must be received by the State and from the State in unlimited quantities in payment of obligations to and by the State; must be accepted by the State in unlimited quantities from any person or place: (*b*) must be fitted for monetary purposes: (*c*) must be made unlimited legal tender?

IV. Do you thoroughly understand that bi-metallism consists of treating two substances, gold and silver, under the three heads just mentioned, as one substance only is treated and has been treated in the world since 1873? Do you recognize that the essential provision under the local dual standard law is an arbitrary fixture of relation by the State of a weight of silver to a weight of gold, at which both shall be unlimited legal tender? That the proportion under the bi-metallic law of the Latin Union, which comprises France, Italy, Belgium, Switzerland, and Greece, is fifteen and a half parts of silver to one part of gold, and that the bi-metallic law of the United States of America appoints sixteen parts of silver to one part of gold? Do you know that in the six countries named debts are legally payable in either silver or gold, at the payer's option, however large the debt may be? Do you know that four of these countries carry on their international trade by means of gold; that at present gold can be obtained on a parity with the

paper promises to pay gold in return for shipments made to these countries, and that bills payable in gold in London can be obtained from these countries for the goods shipped, without a premium upon the gold, in the paper promises of these countries?

V. Have you made up your mind upon the truth or falsehood of these two propositions?—

(*a*) Gold and silver are different substances.

(*b*) No two different substances can be exchanged for any length of time on parallel lines of quantities or values, neither can they be produced for any length of time upon parallel lines of cost.

VI. Do you firmly believe that it is intended that money should do its work by means of the value-giving factors it contains, and that ordinarily it does thus effect its work?

VII. Have you made up your mind upon the question—Is money anything but a commodity? Do you know that the only important difference between the views of a mono-metallist and a bi-metallist is that the former maintains that money is nothing more than a commodity; by which is meant that as copper and tin are produced under the laws of barter, so gold and silver are produced under the laws of barter; that as copper and tin exchange with each other, and for other substances in near relation to the value-giving factors each substance contains under unrestricted trade, so do gold and silver and other commodities exchange with each other under similar provisions; that they are produced and distributed under the laws of cost of production and supply and demand, just as other substances are: whilst the latter maintain that gold and silver, being taken as measures of value and dealt with as described by States under the conditions mentioned in Question III., prove exceptions to substances the production and dis-

tribution of which are governed by the laws just mentioned?

VIII. Are you aware that fully three-fourths of the annual production of gold and silver is used for other than currency purposes?

IX. Have you ever thought that since this country does not produce gold or silver in any quantities to speak of, it pays for the gold and silver which it requires for monetary or other purposes by the value-giving factors contained in that which is paid for these metals? Have you extended this view to the annual international interchanges of gold and silver?

X. Is Senior right or wrong in his opinion that in any monetary system, that is to say, where promises to pay money are always encashable when due in the standard substance promised, without question, delay, or expense, the standard metal does its work as though the whole currency consists of the standard metal?

XI. Do you believe that in countries which possess effective monetary systems price is a definite weight of pure metal, just as surely as rates of exchange are definite weights of pure metal, which is so clearly seen by working the exchanges by means of the unit of weight system?

XII. Are you confident that in international interchanges of goods for goods, &c., between countries possessing scientific automatic monetary systems, the substances exchanged are as good as weighed out several times against the standard metal before shipment, as well as several times upon importation into another country before final purchase?

XIII. Is it true that upon a fall in the gold-price of silver in gold-standard countries a rise in the silver-price of gold will take place in silver-standard countries?

XIV. Is it not a fact that, upon a rise in the gold-price of silver, prices of articles interchanged between a gold-standard country and a silver-standard country must be adjusted to the changed relation between gold and silver at once? Has it, or has it not, been clearly demonstrated that, in consequence of the higher silver price of gold in silver-standard countries since 1873, the adjustment necessary has been effected by a fall in the gold-prices of commodities, &c., imported from silver-standard countries?

XV. If gold and silver appropriated as money are not measures of value, because in your opinion all instruments of credit and tokens of money are all money, and this money does its work by quantity and not by value, can you give any reason why metal should be used for money at all? Why should not each country's internal and international interchanges be conducted through the intermediary of judiciously issued paper, the same to be legally appointed the instrument for the final liquidation of debts?

XVI. Can you describe the different effects resulting from the suspension of the Bank of England Charter Act and the distrust of a State note?

XVII. Do you recognize the incomparable difference between an effective monetary system and a currency system consisting of inconvertible paper? Is not the essence of this difference the value-giving factors contained in the metal and the value-giving factors contained in the false promise to pay metal?

XVIII. Is it true that, though we cannot trace it, there is an annual average cost of the production of copper, tin, gold, silver, and coals, determined by the laws of barter?

XIX. If the comparative annual average cost of the production of gold and silver is in the relation of eighty parts of silver to one part of gold, and

the whole world just now embraced bi-metallism; and if, as a further condition, money does its work by means of its value-giving factors, must it not inevitably follow, and that speedily, that gold would disappear from the whole world as a monetary medium: because the mints of such countries as possess desirable exchangeable properties would be loaded up with silver, and in all probability prices would rise so that, to obtain one part of gold from the earth, 20, 30, 40, 60, or 80 parts of silver would have to be given, and in the meantime the gold would be withdrawn from the currencies of the world at the proportion fixed by the bi-metallic law?

These questions demand the most serious attention of the world's rulers, statesmen, legislators, political economists, educationalists, and all men engaged in commercial affairs; in fact, of every one who is able to think about them.

Some have found that the key to open out the whole science of money to the comprehension of the world, in a manner it has never been understood before, is the unit of weight system applied to the foreign and colonial exchanges. My cases upon this system, and illustrative of these exchanges, are to be seen at the offices of the London School Board, the offices of the Keeper of the British Standards, the Bank of England and various banks, and at the City Liberal Club.

Mr. Henry Hucks Gibbs may have studied and made up his mind upon these questions, the most important of which, bearing upon the science of money, is the first, that upon the foreign and colonial exchanges.

A short time back, at the close of pleasant interviews and lengthened correspondence with Mr. Gibbs's associate in the British championship of bi-metallism, Mr. Henry Riversdale Grenfell, I was

somewhat surprised to hear his admission to me that he knows nothing about the foreign and colonial exchanges, and that he is too old to learn. For my part, I cannot admit that any one is entitled to form an opinion upon any form of metallism for monetary purposes who has not "a masterly skill in bullion and coin," which is to be gathered from the exchanges, and a knowledge of the bullion, coin, and exchange dealer's business. I know the retort which can be made on this. "Is not Mr. —— a bi-metallist, and Mr. ——, who is also a well-known Cambist? These have all the qualifications which you think I ought to possess." To which I reply, "I know Mr. ——, and Mr. ——, and Mr. ——, who are dealers in money and the exchanges, and are entirely opposed to bi-metallism. My object is to place material within the reach of each man's study, so that he may be able to make up his mind for himself upon this most important question of metallism for monetary purposes."

I do not intend to follow Mr. Gibbs through his article, "Short Notes on Money and Bi-Metallism," in the February number of the Journal. Though he appears not to understand some of my statements at first, he in the main gets pretty well on to my meaning: to which, perhaps, some of the foregoing questions may help him the better to comprehend.

It is satisfactory to find in his paper that, though he makes much of the quantity theory of money, he writes of it as a "measure of value." The half-dozen advocates of bi-metallism upon the Royal Gold and Silver Commission, 1886-9, also wrote of it as a "store of value." This, to my mind, conveys the idea that these metals contain value-giving factors. It is inconceivable by me that these value-giving factors will always bear the same relation for the same relative weight of silver to gold. But if the natural production of the two metals does not permit of this, must not any legislation with

this object, even though world-wide in its operation, of necessity break down sooner or later? The mono-metallists answer, Yes; the bi-metallists answer, No.

I have made the statement that Mr. Roberts-Austen, Chemist and Assayer to the Royal Mint, furnished a minute to the Royal Gold and Silver Commission, 1886-9, wherein he made the gold price of the production of 88⅓ million ounces of silver, which was the world's estimated production of silver in 1883, at the proportion of 44 parts of silver to 1 part of gold. In Mr. H. H. Gibbs's article, he wrote, "I have re-read Prof. Roberts-Austen's evidence, and can find nothing like this, and I learn from him that he never said anything of the sort." If Mr. Gibbs will refer to page 328 of the appendix to the first report of the Royal Gold and Silver Commission, he will find these words given by Mr. Roberts-Austen under the figures of the total yield:—"The mean cost of the production of the ounce of fine silver was, therefore, about 1*s.* 8*d.*, corresponding to 1*s.* 6½*d.* per ounce standard." This is in the proportion of 51 parts of silver to 1 part of gold, arrived at in this manner: 1*s.* 8*d.* = 20*d.*, which is the sign for 9·417 troy grains of pure gold: 480 troy grains of pure silver in an ounce, divided by 9·417, yields a proportion of 50·97 parts of silver to 1 part of gold. This is about 16 per cent. more than the 44 parts of silver to 1 part of gold mentioned by me, and may be taken as interest upon capital. Mr. Gibbs writes that the Professor's expression in his report, "the mean of successful mining and metallurgy," is interpreted by him "as the actual average cost of bringing ore in sight 'to grass,' and extracting the silver." Does Mr. Gibbs mean by "to grass" that there were no transport charges? Mr. Roberts-Austen distinctly states, "Sufficient allowance has, it is believed, been made for the cost of mining and

transport." Under Section II. he gives the cost of two mining companies, and takes a freight of $18 upon other expenses, $72·63, or 24·78 per cent., and $59·37 upon $189·20, or 31·38 per cent. These freights are taken into the cost, and affect more than 20 millions of ounces of silver. It is a pity that this escaped Mr. Gibbs's notice. Mr. Marble, President of the National Bank of California, estimates the gold-cost of silver in the following proportions to 1 of gold: 39·3 of silver in the United States of America, 55 of silver in Mexico, 60 of silver in Central and South America. In Australasia it is likely to be very much higher.

As one who has taken considerable pains to arrive at the comparative average annual cost of the production of gold and silver, which is the only proper way of looking at the matter, I must state my impression from two years' experience, gained from the returns from the U.S.A. of the actual yields and cost of production of gold in California and silver in Colorado, that 80 parts of silver to 1 part of gold is not far from the truth, if it could be tabulated. Bi-metallists should not lose sight of the fact that there are gold-mining failures as well as silver-mining failures. My method deals fairly with both industries.

I have now done with Mr. Gibbs's notes. I refer the student to his writings and to mine.

I am painfully sensible that I cannot write nearly so clearly as I desire, though I am glad to say that Mr. Gibbs has pretty well grasped my meaning. Upon the appearance of his "Colloquy upon Currency," in the *Contemporary Review* of July, 1889, I did all I could to urge an abler writer than myself to write a colloquy from the mono-metallists' standpoint, and, failing to get this done, I wrote a "Colloquy upon the Science of Money" in September of the same year. A perusal of these two

papers would throw into prominence the different views we take upon the subject of money.

The publication of my guide to the Foreign and Colonial Exchanges under the title of "Norman on Metal Money and the Exchanges" will soon be completed by Messrs. Sampson Low, Marston & Co. Ltd. Four factors are used in the construction of the second and working part of the guide. I. The Mint issue weight of pure metal in each of the world's 29 chief moneys of account. II. The money table of each monetary system. III. The weights by which silver is sold in the 15 gold monetary systems, and by which gold is sold in the 14 silver monetary systems. IV. The fourth factor is Norman's unit of weight system, which is based upon the first and second factors and consists of adding to each monetary system monetary signs for one gram and one grain of pure metal on the mint issue weight of standard coins. With these simple factors worked by decimals the world's 225 fixed gold pars of exchange of gold for gold; and the world's 196 fixed silver pars of exchange of silver for silver are reached, as also are the 210 absolute pars of exchange of gold for silver, and the 210 absolute pars of exchange of silver for gold upon the gold price of silver of the day in gold monetary systems, and upon the silver price of gold of the day in silver monetary systems. Deviations from par within metal points assume the form of a percentage premium or discount upon par. Thus, the rate of exchange in a country upon another country to which it is shipping standard metal would be at a premium of the amount of the charges for transmission of the metal and coinage, should there be such; and the rate of exchange in a country upon another country from which it is receiving standard metal would be at a discount to the extent of similar charges.

Note.

The following are Mr. Norman's writings on monetary subjects since 1883. The articles which subsequently appeared in "Local Dual Standards," printed by Cassell's, have [1] attached. Those which have [2] attached appeared in Miss E. C. Sharland's "Coin of the Realm: What is it?" (by Waterlow and Son, Limited). Those with [3] attached are in this guide.

In the pages of the *London Chamber of Commerce Journal.* A demonstration that Professor Stanley Jevons was not a Bi-metallist, August, 1883. "Function of gold and silver currency in the internal and international transactions of countries, international indebtedness, and the simplification of exchange," in the numbers for July,[1] [2] August, September, October, November, and December, 1883; March and May, 1884. A refutation of the views of Mr. Dunning M'Leod, that the sole essence of wealth is exchangeability, January, 1884. A letter upon the proposed degradation of the half-sovereign to a token, May, 1884. "On Coinage Charges," May, 1884. "On the production of gold and silver in the United States of America," January and March, 1885. The "Comparative cost of the production of gold and silver, and the comparative yield of grains of gold and silver per ton of ore," June, July, August, September, and December, 1885; February, May,[1] July,[1] and October,[1] 1886; January,[1] and May, 1887. A letter on decimal currency, August, 1887. "A scientific automatic physical standard currency," September, 1885. On the question whether the "Dislocation between gold and silver, or the appreciation of gold, produced the disturbance in gold prices," October, November, and December, 1887. "On the present position of the universal currency

dilemma, and the probable results of the possible future action in connection with the same," March,[2] April,[2] May,[2] June,[2] 1888. On the prices of gold and silver bullion and coin in London, 1759-81, April, 1890. "The value theory of money or the standard substance," May, 1890. The United States Mint Report 1889, August, 1890. "Money, and how it does its work," June, July, September, and October, 1890. Foreign and colonial exchanges, November, 1890. "True money for the British Isles," February, 1891. The United States Mint Report for 1890, June and July, 1891. Answers to six questions on money, October, 1891.

Lecture read at the London Institute of Bankers, reported in the March, 1887, number of the *Institutes' Journal*, namely, "An elucidation of the metallic bases of the colonial and foreign exchanges, and the simplification of exchange." "Norman's Exchange Calculus," November,[2] 1888. "The quantity theory and the value theory of money," March, 1890, in the same journal.

In the *Bankers' Magazine*, "Norman's Single Grain System[3]," for determining the par value of all moneys of account and gold and silver coins between all countries: also, for ascertaining the comparative weights of fine gold or silver indicated by relative prices throughout the world; May, 1887. Trustees and the currency question, June, 1887. Appreciation of gold, July, 1887. On Professor Nicholson's "Money and monetary problems," July, 1888. "An effective metal standard," August,[2] 1888. "Money and monetary systems," October,[2] 1888. "Norman's Single Grain System," September,[2] 1888. Currency Systems, January, 1890. Commercial pars of exchange, June, 1890. The effect of the unlimited reception of silver by the mints in the United States America whilst that metal is unlimited legal tender there, August, 1890.

Norman, "XIX Theses of Money,[3]" October, 1890. The A B C of the foreign and colonial exchanges, August, 1891.[3]

In Dornbusch's *Floating Cargo List.* Comparative prices of wheat, November, 1887. Wheat from countries where the currency is inconvertible paper, June 19th, 1888. Rise in the gold price of the Russian note rouble, July 11th, 1888. The expected legislation on silver in the United States of America, and the probable result of the same in the British Isles, May, 1890. The necessary changes in prices of merchandise upon a fall in the gold price of silver and a consequent rise in the silver price of gold, and vice versa, May, 1890. Money and wheat, June, 1890.

J. E. Beerbohm's corn trade list, &c. The silver question and the price of wheat, October, 1889. What is money? July, 1890. The foreign and colonial exchanges, October, 1890. Cost of production, November, 1890.

"A memorandum prepared for the Royal Gold and Silver Commission of 1886-9 dealing with the cause or causes of—(1) the world-wide fall in the gold price of silver, and the rise in silver price of gold, and (2) the fall in the prices of commodities generally in Great Britain since 1873," November,[2] 1887. A colloquy upon the science of money, printed and sold by W. H. Allen & Co., October, 1889. "Coinage of England from the Conquest," *Journal of the Royal Statistical Society*, December, 1890.[3] Norman's Unit Weight System, the dissolvent of the World's gold and silver and inconvertible paper exchange quotations, September, 1891.[3]

In the *Railway Times*, "Adequate available gold reserves for the British Isles," February, 1891.[3] "Mr. Goschen and reserves of gold in the British Isles," December, 1891.[3]

STANDARD GOLD COINS.

I. Egyptian Pound.

II. British Pound.

III. Turkish Pound.

IV. Portugal, 5 Milrei

V. Uruguay, 5 Pesos.

VI. Newfoundland, 5 Dol

VII. U.S.A., 5 Dollars.

VIII. Argentina, 5 Pesc

IX. Cuba, 5 Pesos.

X. Chili, 5 Pesos.

XI. Brazil, 10 Milreis.

XII. Netherlands, 10 Guilders.

XIII. Denmark, 20 Crowns.

XIV. Germany, 20 Marks.

XV. France, 20 Francs.

XVI. Shanghai Tael.

A Weight: no such coin in circulation.

XVII. Trade Dollar.

XVIII. Mexican Dollar.

XIX. Java Dollar.

STANDARD SILVER COINS.

XX. Japanese Dollar.

XXI. Philippine ½-Dollar

XXII. Peruvian Sol.

XXIII. Tripoli Mahbut.

STANDARD SILVER COINS.

XXIV. Russian Rouble.

XXV. Siamese Tical.

XXVI. Austrian Florin.

XXVII. Indian Rupee.

XXVIII. Persian 2 Krans.

XXIX. 4 Tunisian Piastres

A COLLOQUY

UPON THE

SCIENCE OF MONEY.

BY

JOHN HENRY NORMAN.

LONDON:
W. H. ALLEN & CO., 13 WATERLOO PLACE,
PALL MALL. S.W.

1889.

GEO. HARDING
Dealer in Economics
12, BURY STREET

ADDENDA

TO

A COLLOQUY UPON THE SCIENCE OF MONEY.

It is time that philosophers and men of science should *understand* and write upon this subject, either against or in support of the present monetary standard of the British Isles.

A complete knowledge of "The Single Grain System" (*London Bankers' Magazine*, May 1887) and "The Exchanges upon a Scientific Basis" (the same journal for February 1889), furnishes a good portion of the true foundation of monetary science.

Since these two papers and the "Colloquy" are sufficient to enable any intelligent person to obtain a masterly skill in bullion and coin, it rests now with those engaged in education what time shall elapse before it will be considered a disgrace to any fairly educated man or woman not to possess it. This skill should be the essential requisite of all bankers' and merchants' clerks. Persons having property in other lands, sailors, soldiers, and travellers should also acquire it. Without it, it is impossible that a healthy and intelligent public opinion can be formed upon bi-metallism, or any other unsound and damaging currency system.

How long will Governments delay to commence the endeavour to remove the reproach which this disgraceful ignorance casts upon the world?

EXTRACTS OF LETTERS RECEIVED BY MR. NORMAN.

From PROF. WILLIAM GRAHAM SUMNER, Yale College, U.S.A.

9th January 1889.

"The doctrines in *Coin of the Realm, &c.* are entirely impregnable, and are well stated."

From PROF. DR. AD. SOETBEER, Gottingen, after reading the "Colloquy."

27th September 1889.

"I thoroughly approve of the principles which you have advocated in your numerous writings against bi-metallic projects and a paper currency which is not at all times convertible."

December 2nd, 1889.

A COLLOQUY

UPON THE

SCIENCE OF MONEY.

SCENE.—*A Bank Parlour not* 200 *yards from the Royal Exchange.*

TIME.—*Eleven o'clock on Monday morning.*

PRESENT.—*Mr. Monnummus, Mr. Binnummi, Mr. Creditus, and Mr. Mesites, Bullion Coin and Exchange Dealer (Mr. E.).*

Mr. M.—Glad to see you, friends, thus early. You know what the present Chancellor of the Exchequer said recently ?

Mr. C.—Oh, yes. In July 1887 he told his constituents in St. James' Hall that this vexed question of bi-metallism, with others, would have his attention in the autumn, and that the Government could not allow the questions to drift without bringing them at last to a real authoritative decision.

Mr. M.—I was not thinking of that. But as

you mention it, I must say he seems a long time in accomplishing what he intended. Perhaps, as he is a cautious politician, now that the Grand Old Man has spoken, he may find it within his power to speak out also, especially since a scientific man has given him his opinion that in his (Goschen's) advice to mono-metallists to agitate the country against local dual standards, he has recommended them to embrace an impossible idea and then to agitate against it. I always maintain against the bi-metallists, who claim the Chancellor as one of them, that unless he has swallowed his principles he cannot agree with them; and as yet I have read nothing to cause me to change my opinion that he is on the side of John Locke and his disciples. No; I was not thinking of that, but of an utterance of his made not long ago, when at a banquet of commercial men he declined their invitation to address them on the local dual standard question, and quoted the saying of Sydney Smith that "Currency and exchanges, next to love and religion, fill our lunatic asylums."

Mr. C.—Ah, I remember that; and now I perceive that you have been wise in getting us together thus early on a Monday morning when, if at any time, our brains should be best fitted to discuss this subject of money.

Mr. B.—I think that we bi-metallists may be well satisfied with the great strides our cause is making. The opposition of the members of the Royal Gold

and Silver Commission of 1886-9, who advocate a local single standard, is so feeble that they have as good as given up the case to us. They seem to think a lasting fixture of relation between gold and silver possible, and that both metals can be preserved as concurrent local standards. To be sure, Professor Marshall's opinion is dead against them; but then we have Professor Nicholson on our side, and I think his arguments are unanswerable.

Mr. M.—I hear on all sides of the great disappointment which the Commission has caused. The Americans are disgusted with it. Still, I do not think that you have much to boast of. You have admitted that gold and silver are stores of value; by which, I suppose, you mean that as cultured marketable land has cost value and exchange value, so both gold and silver have cost value and exchange value, and that, as a rule, each commands equivalent value in exchange for other commodities, &c. This, in my opinion, is a great advance upon an important part of the local dual standard creed, which was that the effigy upon the coin gives it exchange value and that the fiat of a Government can give value to a thing, which is contrary to all economic teaching.

Mr. C.—Well, as far as the report goes, I am delighted with the second Blue Book of 276 pages out of a total of 1,057 pages. This gives the proper weight to credit instruments. The Commissioners are particularly happy in advancing and giving such prominence to Mr. Dunning Macleod's views, which I

have always held to be sound and unassailable. I believe that our intelligent go-ahead kinsmen in America are right when they assert that the soundest and safest currency, as a standard, is notes denominated "Greenbacks," for is not the wealth of the U.S.A. illimitable? Harvey, the disciple of the great Bishop Berkeley on currency, was not far wrong in his views at the beginning of the last century, which may be judged of by his questions, two of which are, "Whether working men would not be wise to agitate for a money based upon labour rather than pure gold; and whether gold is not the money of barbarism?" I think I detect somewhat of the same view in the assertion made by some people *that gold and silver are only small change.*

Mr. B.—I entirely disagree with you, and I am prepared to dispute your arguments. It is most important that the basis of all credit instruments should be metal. I hold that both gold and silver, tied together by a fixed relation now and for ever, if all nations and peoples would see it and adopt it, is a safer monetary standard for a country than one metal alone can be.

Mr. M.—I do not agree with either of you. I am prepared to demonstrate that a scientific standard for monetary purposes, as a measure of value and a means of payment, must be automatic in its action, and that it cannot consist of two substances in one country.

Mr. C.—Well, I am quite prepared to argue the question. I will begin, and ask—What is money?

and I should answer it out of the *Encyclopædia Britannica.* In the article under the head of "Money," which was written, I believe, by the Professor of Political Economy, Trinity College, Dublin, the opinion of Professor F. A. Walker, of the John Hopkins University, U.S.A., is quoted with approval. It is as follows : "Money is that which passes freely from hand to hand throughout the community in final discharge of debts, and full payment for commodities, &c., being accepted equally without reference to the character or credit of the person who offers it, and without the intention of the person who receives it to consume it or enjoy it, or apply it to any other use than in turn to tender it to others in discharge of debts or payment for commodities." I agree entirely in this. Greenbacks answer the conditions, and any other state credit instruments can do the same. Pieces of paper are the true standard substance, but it is as well to have some gold and silver as small change.

Mr. B.—I have never believed in the views held by the Birmingham School on currency. I have read a good deal of the history of inconvertible paper in the United States of America and continental countries, and I am convinced that a sound monetary system must be based on metal, gold and silver concurrently in a country being the best basis. The amount of misery which inconvertible paper has produced has forced me to this conclusion. I do not like Walker's definition of money, and I think I could give a better one; but as it

would embrace my system equally with the monometallic system, I offer no objection to it.

Mr. C.—I am glad I am in harmony with you, Binnummi, thus far on the definition of money. But in contrasting my system with yours, it always appears to me that the Legislature of a country would act very inconsistently by carrying out your plan of fixing a relation between gold and silver.

Mr. B.—How so ?

Mr. C.—You may not perhaps know that I consider it positively unjust that the Legislature prevents me, or anyone but a certain definite number in the country, from issuing notes payable on demand to the extent of the credit which I or others possess, whereas, under your system, a fixed relation affords an unjust protection to the producer of gold or of silver: may-be silver at one time, and gold at another. But worse than that. If the history of the past is to be taken as any guide to the future, the cost value of silver in relation to the cost value of gold has been, and is, continually falling, and no man can possibly predict what the bottom of the fall may be. If the silver producers have this protection in competition with the gold producers, why should not I have freedom of action, which I consider only just, on the principles of free trade, with regard to the issue of notes by me payable on demand? In this matter of money there seems to me a great deal of favouritism and unfairness, which I should like to see swept away, and every man allowed to act as he pleases.

Mr. M.—With regard to that which you have expressed in connection with the definition of money given by Professor Walker, I am not surprised that you both feel that you are safe in considering that your different views come under it; but I am entirely dissatisfied with the definition. I maintain that there is a science of credit and a science of money. I trust that neither of you will consider that I am not alive to the tremendous importance of credit, or trust, by word or by instruments; I would be the last person to underrate the mighty effects of credit instruments, and the vast benefits conferred upon mankind by the use of them. Suppose that to-morrow morning the inhabitants of the British Isles awoke without any faith in credit instruments and banks, and positively declined any intermediary but standard metal, and that the banks should be beset for the £580,000,000 deposits and current accounts held by them. All payments must stop, and bankruptcy and barter ensue; and thus it would continue until the nation found faith again in credit instruments and banks. Were there standard metal enough to be the intermediary in all interchanges which credit instruments and metal now conjointly effect, the cumbrousness of the metal medium would impede business to such an extent that the occasional distrust of credit instruments would be preferable to carrying on business without credit. Though this is my opinion, I hold with Senior: "*Credit amounts merely to this: that B has in his hands part of the property of A.*" Money in John Locke's time meant coins

of gold, silver and copper. In Peel's time it meant gold, silver and copper coins, and bank notes. Now nobody knows what it means. Some say it is anything having the power to enhance prices, as a word of promise of payment for an article taken. This would include all instruments of credit and book debts. The political economists and the bankers are at variance upon the constituents of money. The former assert that the £580,000,000 of deposits are money, which the latter deny. I should be disposed to think that only the part of the deposits which are active could be considered as currency: such as take the shape of all manner of credit instruments that can be handled. Credit instruments, in a sound monetary system, are only the signs of the standard substance. They are no part of a sound monetary system longer than it is believed that they will be paid in the standard substance, and when they are paid they are no longer part of the monetary system. It should be constantly borne in mind that a standard of value and means of payment spring from the wants of a people, who should themselves select it. This they generally do, and are aided by the Government with laws to obtain and preserve it. A suitable standard of one period may become unsuitable from change in the habits and wants of the people, or a change in connection with the substance, at another period. Whether both gold and silver, or either, will continue to be standards must depend upon the cost of production, together with quantities taken from the earth. Gold in unlimited quantities, and silver in un-

limited quantities at cost values, equivalent to 100s. per lb. and 80s. per cwt. respectively, would not perhaps suit as measures of value and means of payment. All that can be done is to take the best substance to be had for the time being.

Mr. C.—Really, what you advance strongly supports me in my preference for a credit instrument standard.

Mr. M.—There could be a scientific system of credit substances without any metal whatever, but it would be of an autocratic register character. "Suppose countries A and B possess equally well organised banking systems, but no intrinsically valuable currency or reserves; that in A the unlimited legal tender and final discharger of debts consists of excessive issues by the State of stamped pieces of paper, whilst in B it consists of moderate issues by the State of stamped pieces of leather. Within certain limits interchanges of raw or manufactured articles, stocks, shares, bonds, &c., could be as freely effected as though the instrumentality of gold and silver were employed. The larger quantity of stamped paper in A, constituting price, than of stamped leather in B would have no deterrent effect upon the exchanges. The high prices for which the goods, &c., of B sold in A would have to be given for the goods, &c., desired by B, and the low prices of its goods, &c., sold in B, would have to be given for the goods, &c., desired by A of B. The impediment to commerce would arise when the goods, &c., of one country are required by the other in excess of demand for goods, &c., on the part of the country

of whom the requirement is made ; since the paper of A would have no value in B, nor the leather of B in A. Bullion or coin would meet this difficulty. There could be no such exchange relation between these countries as substances of value embodied, say, in gold and silver, at present affords. The State would alone be the issuer and might commit great injustice, either wilfully or in ignorance, by the autocratic issue of quantities of credit substances. There could be no adjustment such as an automatic metal standard affords, through its power as a regulator of the international exchanges. The science of a pure credit system would consist in adjusting the issues to new circumstances and the varying wants of the people. This would appear to be beyond the power of any Government or bank to accomplish. Before proceeding to what I consider to be a scientific definition of money, I should like to advert to barter.

Mr. C.—I am glad that you referred to this, because it has always helped to confirm me in my views of free note issues. An axiom of political economy is that whatever may be the monetary system of a country, whether it be good or bad, a purely credit system such as you have described, a purely metal system, or a combination of the two, the conditions of barter will always be preserved. In other words, the value-giving factors embodied in anything will exchange for the value-giving factors embodied in anything, whatever may be the changes in the credit, metal, or combined intermediary. The inter-

mediary will be moulded to the conditions of barter. (See *J. S. Mill*, Book III., chap. xii., last paragraph.) I always make use of this at the present time, and I ask, why all this fuss about a scientific automatic metal standard for monetary purposes? The conditions of barter cannot be affected by any monetary system, good or bad. I cannot see, therefore, why my credit system is not the very best of all.

Mr. B.—There is no doubt that the truth of the axiom just quoted has never been questioned; but it is difficult to see the operation of it. A present writer upon monetary subjects asserts that it has been in operation since 1873, but I cannot say that I see it. I say that the fall in prices in this country since 1873 is due to deficiency of standard metal. He asserts that the fall in the gold price of all articles from silver standard countries is due to, and largely measurable by, the fall in the gold price of silver, and instances it by tea from India in a manner which I must say it is difficult to dispute. He further asserts that if the fall is due to the deficiency of gold, the estimated fall in prices from that cause must be added to the demonstrated fall resulting from the increased silver price of gold. When this is done the fall is not found to be so much as the combined asserted causes should produce. He therefore concludes that the fall of prices is mainly due to the fall in the gold price of silver. I cannot say that I agree to this. Some bi-metallists, I know, take his view of this matter. He asserts,

and I think I must agree with him in this, that if the gold price of silver suddenly becomes thirty pence per ounce, there must be an adjustment of gold prices or silver prices generally in silver standard countries, or gold standard countries, or in both, to meet this change and to regulate international interchanges between such countries. He thinks it would take the shape of a fall in gold prices.

Mr. M.—There is a question I should like to ask of each of you before giving you my definition of money. Do you feel that you have a "masterly skill in bullion and coin?" I ask this question because I expressed the hope to one of the most prominent of the Commissioners of the Royal Gold and Silver Commission of 1886-9, during the sitting of the Commission, that he and his coadjutors would show themselves mighty among the grains of standard metals. Subsequently I met with this passage in Wm. Horsley's preface to the *Universal Merchant*, written in 1753:—"The acquaintance with the exchanges, however it may seem to some the business of merchants only, in commercial free states, falls properly under the cognizance of gentlemen, particularly those who have or intend having any share in the Legislature, and still more materially such who are in the immediate direction of public affairs, as without a masterly skill in bullion or coin it is impossible to understand the exchanges, whence singular inconveniences may happen in delicate emergencies. There is not any article of trade in which

the gentleman should not be a tolerable theorist; but in bullion and coin, whereby other articles are usually adjusted, he should be practically skilful." I ask each of you, therefore, if you have a "masterly skill in bullion and coin?"

Mr. C.—I really do not know what you mean, but I am disposed to think that the question would have no point if notes and other credit pieces of paper were made the standard and gold and silver became the tokens of paper, and took their real proper place as small change. This is what should be arrived at. This the world must ultimately come to, I am convinced.

Mr. B.—I know nothing about the exchanges. I was talking with Grenfell the other day, and I find that he is just in the same condition. I sometimes wonder if our state of ignorance is the general portion of bankers. Grenfell told me that he had heard that there is a book from which children can gain this skill, so far as it is connected with the foundation of metallism. I rather think I looked into it once. One part appeared to me too childish to trouble oneself with, and another part bristles with statistics which I hate, and, besides, it reads like jargon. What have we got to do with such an elementary subject as bullion and coin? The greatest part of the transactions of the world are carried on by credit instruments. Let our great and only reservoir, the Bank of England, keep enough gold and silver bullion and coin to ensure

the encashment of these credit instruments, and our monetary system will be all right. Many of the directors of the Bank of England have not risen to the grandeur of the science of universal bi-metallism, but they are as sound as I am upon the importance of a sufficient reserve of standard substance to meet all probable claims for the encashment of credit instruments.

Mr. M.—Well, Mesites, what answer are you going to make to this question?

Mr. E.—My life has been spent as an exchanger of gold and silver and credit instruments. My fortune is made by an intimate acquaintance with the money markets of the world. With regard to the world's standard substances, gold and silver, I know the expressions for the same weights of these in each country of the world, here in gold, there in silver, according to the standard of the country; and both in silver and gold each day, as the gold price of silver and the silver price of gold fluctuate in countries wherein both metals are unlimited legal tender. I know the metal points between all countries, to ascertain which I am up in the charges of all mints. I know to a nicety the packing, carriage, shipping, freight, insurance and brokerage charges on the purchase and moving standard metal between all countries. I know that between countries possessing effective metal standards rates of exchange are definite weights of standard substances. I know the exact weights of gold and silver meant by the quotations of exchange published in the daily newspapers between

such countries. I know that there is no difference in value between bullion and coin wherever there are no coinage charges. By a glance at the gold price of silver in a gold standard country, and at the silver price of gold in a silver standard country, I perceive the proportionate weights of gold to silver indicated by the quotations. I know immediately that I see a quotation of exchange between two countries whether the two countries possess effective metal standards. If the proportionate quantities of gold and silver established by the world's market price of gold for silver or silver for gold is vastly less than the proportion yielded between the two metals by a comparison of the quantities indicated by a rate of exchange between a country having an effective gold standard and a country with a professedly silver standard, but in which the paper currency is inconvertible, I can measure the depreciation of the paper currency by the exchange quotation within a fraction of metal points. I am fully alive to the value of Norman's Exchange Calculus, to which well-merited testimony has been given by three leading German political economists. I admit that the knowledge of this Calculus is of more value than the possession of a universal coin, for it renders such a coin unnecessary. It enables any child who can work decimal multiplication and division to ascertain in a moment the pars of exchange between all gold and silver coins and moneys of account in any one or all countries of the world. I know that there are twelve gold standard and fourteen silver standard

weights which command the exchanges of the world. These weights, in fine gold at mint issue weight, range from 1·02 grains for the piastre in the Ottoman Empire, to 113·006 grains for the sovereign in the British Isles and throughout large tracts of the British Empire; the weights of fine silver range from 7·222 grains for the banabat in Persia, to 5·085 grains for the tael in Shanghae. I am sensible that Miss Sharland's and Mr. Norman's work in *Coin of the Realm, &c.*, and *The Exchanges upon a Scientific Basis*, has opened up to the public of the world at large information which we exchangers have kept to ourselves. I do not repine at this. Competition reduces our profits to a minimum. Only those in the business can know whether a country is receiving or parting with its standard substance, and upon that must depend the rate of exchange. The public may know the pars of exchange and the metal points, *i.e.* the limits to the fluctuation of the exchanges, but that is not near enough for business. I am quite aware that few who deal in exchanges think of definite weights of fine metal. I am certain that very few of the people of the world know that price in a country possessing an effective metal standard is a definite weight of standard substance, but it is so. The instance of tea in the *Exchanges upon a Scientific Basis* illustrates and demonstrates this. I think, perhaps, that I have said enough to entitle me to be credited with "a masterly skill in bullion and coin."

Mr. M.—I am very pleased with your remarks,

and the testimony you bear to the value of Miss Sharland and Mr. Norman's work.

Mr. C.—Well! I never heard this before. I begin to see that a standard substance is of vast importance. If all this springs from sound doctrine, I shall have to re-examine my faith.

Mr. B.—This is really interesting. I think I ought to try to know something about it.

Mr. M.—I do hope that you will not only try, but that you will also succeed. But I beleive that if all do not succeed it is due to deficient education. If people decline to look into the subject with the determination to master it, because of age or any other equally foolish pretension, urging that it is too elementary for them to take it up, they must continue in ignorance. It is my opinion that everyone who has not "a masterly skill in bullion and coin" is presumptuous if he talks upon metallism at all. He must be in ignorance of the very foundation of monetary science.

Mr. C.—I should like to ask Mesites how he knows the weights of metals indicated by rates of exchange.

Mr. E.—Each country has a denominational expression for one grain of fine metal, be the standard gold or silver. The quotation of exchange divided by this expression gives the weight; for instance, F25·22 for £1. The expression for a grain of gold in France, as per Norman's Exchange Calculus, is 22·32 cents. Francs 25·22 divided by 22·32 cents gives 112·993, which are grains. The expression for a grain of gold

in Great Britain is, according to the same tables, 2·124 pence. A pound, or 240 pence, divided by 2·124 gives 113·0016, which are grains. So that France gives on this quotation 112·993 grains of fine gold for 113·0016 grains of fine gold in the British Isles.

Mr. C.—Thanks, Mesites, I see that; and I hope to make use of the knowledge. Now, Monnummus, pray give us your definition of money. I have heard so much from you and Mesites that I did not know before that I expect your views on this will be novel also.

Mr. M.—Before giving you this, I must tell you what I consider to be the conditions of a scientific automatic standard for monetary purposes. They are these—

I. The substance which has been selected must have cost value and exchange value.

II. It must be received in unlimited quantities from anybody, and any place, by the authorities of the country appointing the standard. It must be fitted by these authorities for monetary purposes.

III. The substance must be appointed unlimited legal tender. The substance selected must be suitable as far as possible to the wants and habits of the people, out of which the standard must grow; it must be in considerable use as an intermediary in exchanges among them, and such as is generally desired

by large populations of the earth for other than currency purposes. For an effective metal standard all State notes and other credit instruments which form part of the currency must be encashable without question or delay, and for the actual weight of the standard metal indicated upon the face of the credit instrument. These conditions would appear to secure an effective metal standard for currency purposes. If any one of these conditions is wanting there would not be an effective metal monetary system, neither for the conduct of internal nor for international exchanges. These conditions imply as essential, that *the true standard can never bear an agio, or premium, in the terms of either another metal or inconvertible paper.* The standard substance thus conditioned might be wheat in bulk answering to bullion, and wheat in bags answering to coins; if a valuable substance is to be taken as the standard, the means of payment and the basis of all payments.

I suppose you do not offer objections to these terms and conditions of a standard?

Mr. C.—If the standard of value must possess intrinsic value, I should suppose that these conditions are sound.

Mr. B.—I do not object to the conditions. I do not see that they in any way limit the standard to

one substance in one country. I think two substances can be tied together and caused to act as one substance. I do not assert that you could tie three different substances together and cause them to act as one true, just, and lasting standard. But now let us hear your definition of money.

Mr. M.—In my opinion, money is simply and solely the standard substance—as gold in the British Isles and silver in India. I limit the term money to the standard substance for the following reasons. It is ordinarily—as it is intended to be—a measure of general and particular values, though itself of variable value. It has ordinarily an exchange value in some near relation to its cost value. Other instruments of exchange, token coins included, are not intended to have a correlative value with those things for which they exchange. All credit instruments, in a monetary system embracing both a standard substance of value and credit instruments, are true economisers of the use of the standard substance. It is no exaggeration to say that in every transaction into which price enters, where there is an effective metal standard, the actual weight of standard metal is as good as weighed out; for accepted tokens have equal force on prices with the standard substance, though they are only the sign of the thing signified.

Mr. B.—I do not know that I have any objection to offer to your definition. I would ask you one question. *If you could be assured* that for all time the output of gold and silver and the relative cost

of production would be at, say, 25 parts of silver to 1 of gold, would you object to the bi-metallic scheme ?

Mr. M.—You have put an impossible hypothesis. How can I be assured ? If I look to history I see, according to the best available records, that for 40 years, which ended in 1620, the proportionate weight of silver to gold extracted from the earth was 53 parts of silver to 1 part of gold. In the 40 years ended in 1811 it was 48·5 parts of silver to 1 of gold. This matter of proportionate weight of silver to gold is one factor in the problem. Then there is the other factor—cost of production. This latter is of vast importance in a measure of value of intrinsic worth. With regard to this, Professor Roberts-Austen, assayer of the Royal Mint, London, furnished the Royal Gold and Silver Commissioners with an estimate, showing the gold cost in 1883 of $88\frac{3}{4}$ millions of ounces of fine silver at 20 pence per ounce of 480 grains. His formula was subjected to the severe criticism of the Mint Master of the U.S.A., who furnished his mode of arriving at $25\frac{1}{2}$ pence per fine ounce, or equal respectively to $18\frac{1}{2}$ and $23\frac{1}{2}$ pence per standard ounce. Norman has gone very fully into the comparative average cost of the production of gold and silver upon figures furnished for two years by the American Mint authorities, which have been examined by the London Royal Mint authorities, who could offer no objection to them. He accepted corrections from the President of the

Colorado Silver Alliance for the silver yield and cost of the same for Colorado, in comparison with information received from the Mears Chlorination Company for the gold yield of the world, and found the proportions 97 parts of silver to 1 of gold. Assuming that the proportions of output of the two metals again becomes 53 of silver to 1 of gold, and the comparative cost of production something nearer to the value-giving factors embodied in each, then the yield in 40 years at the proportion of 15½ of gold to 1 of silver would become £2,640,000,000, or nearly four times as much as the present estimated silver in the world, devoted to monetary purposes. If during those 40 years all the Mints of the world could be open to the unlimited reception of silver, and it be made unlimited legal tender everywhere, prices would be so inflated that it might cost 80 to 100 parts of silver to produce 1 part of gold from the earth, whereas 1 part of gold could be withdrawn from the currency for 15½ parts of silver, and all the gold would disappear, having been withdrawn for other than monetary purposes. Silver would be the universal standard. Another conclusive reason against local dual standards is that this is the champion country of free trade, and a fixture of relation must act as a protection to one or other of the precious metal producers. This in itself should be a sufficient reason for this country to decline to entertain the bi-metallic scheme. Besides, there is no security that adopted universal bi-metallism would not become

universal mono-metallism on the cheapest metal, if all were true to the Union ; no certainty that countries entering into a Bi-metallic Union would keep in it ; no security that countries in the Union, and desirous of keeping in it, might not be forced from one cause or another to resort to an inconvertible paper currency ; no assurance that a combination of the most intelligent would not be formed to make contracts alone upon gold. There are 103 empires, kingdoms, states, islands, &c., the interchanges of which are professedly based upon gold and silver, or both ; of these not more than five possess at the present time scientific automatic metal monetary systems, at the head of which stands the British Isles. Germany has followed these islands to her satisfaction. Her rulers and political economists, in my opinion, would never consent to any change; she has no India, and cannot be particularly desirous to benefit France. Prince Bismarck has emphatically told the world, through the representatives of the agricultural classes of his country, that he will never allow anything to be done which would debase the gold in his war chests. Another insurmountable objection which I have to local dual standards is the not only possible, but highly probable, unfairness of the international interchanges to which a non-producing precious metal country may be exposed under this system. We have seen that the terms of barter are value-giving factors in anything for value-giving factors in anything. In the interchanges

between countries, goods and securities parted with pay for goods and securities received. Gold and silver, like copper and tin, are goods obtained by mining, and the conditions of the exchange of them should be as free as that of copper for tin. If a relation is fixed between gold and silver, say 25 parts of silver to 1 part of gold, and the actual comparative cost of production is 80 parts of silver to 1 part of gold, the Mints of the British Isles being open to the unlimited reception of silver in the proportion of 25 parts of that metal to 1 of gold, what would follow if the output of silver should become of historical proportions? The British Isles do not produce the precious metals, and for such as may be brought into the country the country must pay. Grenfell, at one time, thought that the Mints of India being open to the unlimited reception of silver there could be no limit to the amount that country could absorb. He had to learn that India could only take such a quantity as she could pay for. But should the silver miners of the world, under the conditions of the question, be satisfied with consols, British railways, or other property of a similar nature which is possessed by the people of the British Isles, they could exchange their silver, costing them at the proportion of 80 parts of silver, more or less, for 1 part of gold, at 25 parts of silver for 1 part of gold, for such properties. This exchange amounts to this, that we should be giving the miners value-giving factors represented by 80

for their value-giving factors represented by 25, showing a profit to these gentlemen of 220 per cent. The following reasoning has long ago closed my mind against the practicability of Bi-metallism or local dual standards :—

I.—"Gold and silver are different substances."

II.—"No two different substances can be exchanged for any length of time on parallel lines of quantities or values, neither can they be produced for any length of time on parallel lines of cost."

If there is one thing more than another which should be most carefully guarded and preserved in as stable a form as possible *under automatic action*, it is the matter of a standard of value and a means of payment. This standard, in any one country, can no more consist of two substances than it can consist of three substances. M. Cernuschi has recently made the statement "That an ounce of new metal has the same power as the ounce of the same metal produced 2,000 years ago." An ounce of gold is always an ounce of gold ; so also an ounce of silver is always an ounce of silver. If he means that the ounce produced 2,000 years ago has the same power as that produced to-day ; that power in exchange value being, perhaps, vastly different to what it was 2,000 years ago, I agree with him ; but in no other sense. The purchasing power must be altered by the quantity, or the cost of production, or by both in

operation at the same time, or by one operating against the other with various forces. Besides these forces, which tell upon a metal measure of value, there are other factors affecting price quite apart from the metal.

Mr. B.—I am surprised at the erroneous statement you have just made, Monnummus, about the impracticability of local dual standards, as you please to call them. I assert unhesitatingly, and without any qualification, that for seventy years France possessed one standard consisting of two metals, gold and silver. These metals were tied together by the bi-metallic law, and though they are two metals they became by this law one standard, being both together one measure of value and one means of payment. It was a matter of perfect indifference to anyone which metal he was offered. Either suited him as well as the other.

Mr. C.—I have always heard that during the seventy years you allude to, in France, her metal currency was at one time silver and at another it was gold. I should like to know, if there was really no difference between the value of the two on the fixed proportion, how this could possibly have taken place.

Mr. M.—Oh, yes. Binnummi will admit the changes in France during the seventy years, and more; that the dearest metal for the time always commanded an agio, or premium, in the cheaper metal. But he would put a stop to that by all the world being compelled to take either at the fixed relation. Since this discussion is mainly an argument against this view, I need not

specifically advance any reply to this here. But I would say that I doubt whether there would not be an agio, or premium, upon the underrated metal in the overrated metal, even if the whole world could be brought to embrace bi-metallism. This I do unhesitatingly advance: that there can be no scientific automatic metal standard monetary system in which the standard substance commands an agio, or premium, in any other metal or in credit instruments.

Mr. C.—You have completely turned things round, Monnummus. My idea is that the standard substance should be State notes—I think I may almost say anyone's notes—payable on demand, and that the tokens should be gold, silver, and copper coins. I should like to hear what Mesites has to say on Monnummus's definition of money.

Mr. E.—Before answering your question, I would advert to interchanges of commodities and properties between two countries both possessing State issued paper as their standards and sole currencies. Take France and the British Isles. The nomenclature may be the same as now: in France, francs and cents; in the British Isles, pounds, shillings, and pence, paper representing each. We have now the signs, and we must banish all idea of the things which were hitherto signified; that is, definite weights of gold and silver. Let us say that in the British Isles the State makes excessive issues of notes, and that in France the State makes only moderate issues of notes. Excess or moderation can only be judged of by supply and demand. If

the counters are superabundant, they will be used in large quantities for a given value of goods and securities. If the counters are not superabundant, they will be used in less quantities for the same value of goods or securities. In the one country prices will be high, in the other country they will be low, for the same value-giving factors embodied in anything. Under these conditions, if I apprehend Monnummus aright, I do not agree with him in concluding that there would be no exchange relation between the two countries. In my opinion there would be exchange operations, or bill transactions, between the countries, as though the basis of the currencies of the two countries consisted of standard metal; but our business as exchangers would be much limited, since we should have nothing to do with bullion or coin for such countries. Not until the millennium could the French slips of paper become current in the British Isles, or the British Isles slips of paper become current in France. In the other part of Monnummus's proposition on this question I entirely agree. I do not enter on the question of anybody's notes, Creditus, because no State would pass a law that such must be taken as a medium of exchange in unlimited quantities, or that they must be taken at all as payments and legal tender. I assume that State-issued paper is by law made unlimited legal tender. Now I will give you my opinion on Monnummus's definition of money. It is decidedly different from that generally held in the present

day. You have only to read the second Blue Book issued by the Royal Gold and Silver Commission of 1886-9 to see this. That book appears to me to consist chiefly of a miserable effort to elevate credit instruments to the same platform as standard substances. I know that between all countries possessing effective metal standards, it is by paying close attention to bullion and coin alone that I can conduct my business satisfactorily. Between these countries bullion and coin govern my business. Of course, I watch every turn of exchange within metal points, and promptly effect an arbitrage which will give me any profit. I know my limits in doing business with such countries, and the extent of the risks I run as far as changes in their currencies are likely to affect me. The conditions of the currencies of such countries is automatic, and this is of vast importance. It is not so with countries possessing inconvertible paper currencies, such just now, as Russia, Austria-Hungary, Brazil, the Argentine Republic, Chili, and Peru. Nor was it so with France, Italy, and the United States twenty years ago, when the currencies of those countries were inconvertible. Under such monetary systems, being constantly subject to changes through the autocratic issue of inconvertible State notes, the exchanges are subject to greater fluctuations and require even more watchfulness than those exchanges which are based upon effective metal standards. These are and were autocratic currencies, really based on metal, when

the standard metal could be purchased with their paper, but always subject to violent disturbances by the action of the dealers in the standard metal, whose operations are know to the world as "rings" and "corners." Wherever the standard substance cannot be obtained for inconvertible notes, there the currency has no connection with metal, and is of an autocratic register character, under the classification of countries whose currencies are confined to State-issued inconvertible notes alone, as legal tender. I do my business as much as possible on the principle which seems to so largely govern all business of the present day, of selling before purchasing, and so securing a profit, however small it may be. I am inclined to think that the standard substance in the form of bullion and coin appropriated to monetary purposes is a better definition of money than many others. It is certainly nearer to that of Locke's time, and then there was no definition of the terms and conditions of a standard such as we have heard to-day. Whether that definition is right or wrong I do not offer an opinion. Perhaps this definition of money might serve to demarcate more markedly than at present the vast difference between a standard substance of intrinsic worth and its token of no intrinsic worth. It might also lead to greater attention being paid to the study of the science of money, or the standard substance, which, though ingrained into me from the very nature of my business, has been too much neglected by bankers, who are better

acquainted with the science and laws affecting credit instruments, or token money.

Mr. C.—There is another objection which I offer to this metal standard system of money. I understand, from what Monnummus says, that under Binnummi's local dual standard system there has been a constant changing of silver for gold and gold for silver; so that in one country, if not in others, the actual standard measured by the metal for which an agio or premium has been given in another metal has at one time been gold and at another time it has been silver. I suppose, Mesites, you have no objection to offer to this? But whatever you make out of these needless changes of metals must burden some one. Notwithstanding all that you, Monnummus, Binnummi, and Mesites say, an inconvertible note standard is surely the best. You would get rid of many difficulties and burdens by adopting it. Mind you, I think it might be well to have gold and silver as small change. Look at the United States, America. Does anyone doubt that if the Bland Act is continued long enough, and other circumstances favour it, the chief monetary metal will become silver, and that gold will command a premium in it? What perplexities they must soon get themselves into with these metal standards! Listen to what Mr. Logan C. Murray, who presided at the great meeting of the American Bankers' Association held last year, said at it:—"But what of the silver dollar? Has not this association repeatedly placed itself upon record as to

the continued coinage of the silver dollar, and lived in hope and anticipation of unity of action by the nations? The Royal Commission is certainly looking forward to an endeavour to get unity of action—they must have got this idea, Binnummi, from you, or one of your friends—*meanwhile our two great political parties are drifting into free coinage.* Hear what one of them says in a declared platform:—'The Republican party is in favour of the use of both gold and silver as money, and condemns the policy of the Democratic administration in its efforts to demonetise silver.' Now hear what the other great party says:—'We believe in honest money, the gold and silver coinage of the Constitution, and a circulating medium convertible into such money without loss.' Who, then, is now standing against free coinage? Neither of the political parties are opposed to it. This is very impressive. This also reminds me of an Irish cabman, when a gentleman said to him in Dublin, 'See here, driver, I ordered a smart trap to drive in Phœnix Park, and you come round in rags unfit for a beggar.' He answered, 'I know it, your honour. I would like to wear fine clothes, but there is not a tailor in all Dublin as can take me measure, I am that d——h ticklish.' We will rest our case without recession from our former declaration, ticklish as it is, in politics. Our only hope is in international co-operation for a common standard. This is all very fine, Binnummi. The term "rags," perhaps, is sufficiently descriptive of the substance; for silver is now

generally spoken of from the top of Canada to the heel of all the Americas as ship's ballast. If you will not embrace my system, I think that the British Isles are quite right in their determination to preserve the monetary system which they have. France and the Latin Union, such as had the gold to part with, should have worked the thing through and given their last grain of gold for silver.

Mr. E.—I have never made any objection to the constant exchanges of gold for silver and then silver for gold. This is a part of my business, and of course I profit by it. I only act under the laws of the countries I deal with. No doubt, Creditus, you are right. Knock away all metal or any other substance of value from all monetary systems, and our operations would be confined to paper instruments as intermediaries in the interchanges of commodities and properties. I should like to set you and Binnummi to write essays upon this question—"What are the differences between the raising of coins, bi-metallism, and the excessive issue of inconvertible paper, in their respective effects upon prices, the morality of such procedures, and the adequacy of the measures to accomplish the object in view?"

Mr. B.—I have no doubt that I could give an answer to this question which would completely defend my position.

Mr. C.—Before attempting it, I shall certainly try to become possessed of the masterly skill we have heard about. Though I am getting on in years, I

think if I was put to it, and helped, I might hope to understand as much as children can do in the matter.

Mr. B.—You must admit, Monnummus, that this breakdown of the bi-metallic law has benefited the Indian wheat trade and injured the farmers of the British Isles!

Mr. M.—I cannot see that it has done one thing or the other. The conditions of barter have been satisfied. The altered state of prices has not affected the one or the other. Money has been moulded to the conditions of barter.

Mr. C.—I should like to see your proof of this in connection with Indian tea.

Mr. M.—You must know that everything which comes from countries possessing effective silver standards, and is used in this country, is as good as weighed out, probably more than once, against a weight of silver in, say India, as a silver standard country; and is also as good as weighed out in this country more than once against gold before it is used here. Altered proportions, therefore, between gold and silver must alter prices, quite independent of anything affecting the articles priced. As an instance, take Indian tea. The planter in Assam has paid silver to his labourers, and for other necessaries in connection with the production and packing of it. He would send the tea to his agent at the seaport, with instructions to sell it there. The buyer would pay silver for it, having ascertained upon what terms *silver in India could be exchanged for gold in the British Isles.* He

sends the tea to London, and sells it at auction in the Mincing Lane tea market to a tea dealer, the buyer paying gold for it. At length it comes into your possession, you having paid gold for the same. The tea might have passed through more hands than those mentioned before it came into yours, both in India and in the British Isles, but the possessor of it each time practically weighed out either gold or silver for it. It should be particularly noticed that the purchaser in India first ascertained at what rate he could exchange silver for gold before he parted with his silver for the tea. It may be asked why he did this. He had parted with his silver, and got the tea instead; he would have nothing more to do with silver in the transaction. True. *But he has bought the tea for the purpose of selling it for gold in the British Isles.* Assume that your spoonful of tea is part of one pound, which has cost you 2s. 6d. per lb., of which 6d. was for duty. Assume that the purchaser of tea in India has to do with the remaining 2s. We have to account for his anxiety to know at what rate he could exchange silver for gold before he purchased the tea. Say that his position in India was 10 lbs. of tea for 10·96 rupees, or 1,808 grains of fine silver. He is going to sell the tea for gold in the British Isles, and he must ascertain how much fine gold embodied in pounds sterling are equal to 1,808 grains of fine silver. He finds that the rate of exchange is 21·88 pence per rupee, or 10·31 grains of fine gold for 165 grains of fine silver; so that his 10·96 rupees

are worth £1, or 113·0016 grains of fine gold. On this exchange, by selling to you one pound of the tea at 2s. per lb., he makes nothing. But assume that exchange has altered in India, and has become 15·56 pence per rupee, or 165 grains of fine silver for 7·33 grains of fine gold, whilst the price of tea in India has remained the same, viz. 1,808 grains of fine silver, or 10·96 rupees per 10 lbs. Under these conditions the cost price of the tea stands at 14s. 3d., or 80·36 grains of fine gold, and could be sold at a trifle more than 1s. 5d. per lb. The difference between 1s. 5d. and 2s. is 41 per cent. It is hardly necessary to state that the competition among producers, merchants of tea, and others, would reduce profits to the ordinary level, and the consumer would get the immediate benefit of the reduced cost of the tea in the British Isles. No Indian merchant in London doubts the correctness of this view. And all must perceive that it is in keeping with one of the first principles of political economy. If this fact is kept in view by students of currency, Chaplin's speech in the Commons, of 4th June 1889, would appear little better than a bag of wind.

Mr. B.—I am amazed to hear you speak of Chaplin's speech in this way. We think that no finer, fairer, or more convincing exposition of this difficult subject could have possibly been given. If only the Legislatures of the world had men of Chaplin's penetration and wide grasp of the subject, the truth as we understand it would quickly become universal.

But since you say that current interchanges, being conducted on the conditions of barter, are not affected by alterations in money, and that more or less counters, or in other words high or low prices, are of no importance, since if a man gets a high price he gives a high price, and if he gets a low price he gives a low price, I cannot see why bimetallism is not better than monometallism.

Mr. M.—A standard as stable as possible is of the utmost importance in connection with deferred obligations. If the shallowness of Chaplin's argument in the Commons can be blown to atoms by one of the first axioms of political economy in connection with the use of a monetary intermediary, equally so can S. Smith's argument in his *rechauffé* speech which he made in support of his motion. As I read that speech I was impressed with the vast importance of an intrinsically valuable standard of value and means of payment. Let me instance this with facts and assumptions drawn from the present monetary system in Peru. A Peruvian paper sol or dollar is worth just now one and a half-penny. Say all Peruvian paper sols are not worth more. Silver is the standard in Peru. The silver or paper sol should contain or exchange for 347·228 grains of fine silver. Take the following premise. Three periods in the hypothetical history of Peru: 15 years ago, the present, and 15 years hence. During the whole time no change in the value-giving factors embodied in exchangeable articles. Also no

change in Peru in the purchasing power of silver during the 30 years. That during the whole time a paper or a silver sol are equally legal tenders. That in 1874 the silver and the paper sol were at par, and they will be at par again in 1904. One and a half-penny at 16 parts of silver to 1 part of gold would be 11·3 grains of fine silver. Comparing the respective positions of the debtors and creditors in 1889 in connection with their engagements made in 1874, and of the debtors and creditors in 1904 in connection with their engagements contracted in 1889, the following positions are shown. The debtor in 1889 pays value-giving factors embodied in substances represented by 11·3 grains of fine silver for value-giving factors embodied in substances received by him in 1874 and represented by 347·228 grains of fine silver. In other words he pays thirty times less in real value than the amount he borrowed. By the same amount the creditor receives less than he lent. Comparing the position of the two parties in 1904, it is at once seen that it is reversed, the creditor getting the benefit which the debtor before enjoyed. Can anything more forcibly demonstrate, though it be in an exaggerated form, the tremendous importance of preserving a substance of value as the basis of a monetary system, when once it has been obtained? No action of the British Isles brought the operation of the bi-metallic law to a conclusion. The best thinkers in these islands have been telling

the world, including the Latin Union and America, from the time of John Locke to the present moment, that two standards in one country are opposed to all sound principles and therefore cannot succeed. That it succeeded, if it could be called success, for 70 years offers no assurance that it can be preserved for twice 70 years more. I have always found that when bi-metallists are shut up to the ultimate one standard, and that the cheapest as the certain results of the universal local dual standard theory, they at once accept it, and reply, Well, and if so, what does it matter? Why, surely, it matters this, that their admission destroys their argument that bi-metallism is possible, upon any conceivable conditions.

Mr. B.—Well, there is no disputing this fact: that the finances of India are exposed to great danger through the constantly falling gold price of silver.

Mr. M.—How much worse are the finances of India now than they were in 1873? What new taxes have been imposed or diminution of expenditure enforced, as the result of the lower gold price of silver, or, to put it more correctly, the higher silver price of gold? No one can read S. Smith's remarks upon the evils he attributes to the fall of the gold price of silver without asking himself how it is that this country is solvent, and why universal bankruptcy has not overtaken it long since? There are compensations which would reduce the

most alarming views which he presents to dimensions which can be calmly surveyed. It is so with the Indian finances. I know it is said that the fall of one penny in the Indian exchange with London necessitates the additional taxation of India to the extent of 10,000,000 Rs. I am sure that the compensations which are realised would reduce this estimate most materially. It is wrong and misleading to definitely state such a high figure when it is known that there are important sets off which would vastly reduce it. Let efforts be made to arrive at a nearer statement of fact. There have been wars and famines in India since 1873, and vast expenditure connected therewith. So much of the expenditure on these from revenue must be ascertained; to aid in arriving, if possible, at a fairly correct estimate of the taxation imposed and economies enforced to meet the fall in the gold price of silver, due allowance being made for what the stores, &c. purchased here for all railways, &c. cost, compared with what they would have cost had there been no fall in the rate of exchange. There is certainly something to make one treat with suspicion these agonising cries of the Indian Government and its officials. In the July number of the *Bankers' Magazine*, under Stock Exchange values, you will find $70\frac{3}{4}$ millions of pounds Colonial Government stock; $907\frac{3}{4}$ millions Foreign Government stocks. Upon the interest of so much of these stocks as is held here payable by silver standard

countries there is the same percentage strain upon such countries as falls upon India. Have you heard any cries and groans from these countries? I begin to think that there are more compensations than most of us have any idea of. When the Chancellor of the Exchequer was reducing the interest upon the National Debt, I could not but reflect what a fearful injustice might be committed upon the fund-holders, many of whom are very poor, though highly respectable, in the event of the establishment of universal bi-metallism, under the present aspect of the comparative average cost of the production of gold and silver, and the possibility of an almost immediate recurrence of historical periods of the relative outputs of the two metals, if a permanent relation were now fixed.

Mr. E.—Yes. It is not improbable that within a short time after the universal adoption of bi-metallism a sovereign in this country would not have greater purchasing power than a few shillings. A loud lamentation would then proceed from those who live on annuities, or other fixed incomes, and from the prudent poor who have saved money. If this thought took possession of the country, it might give the finishing stroke to bi-metallism for ever. For my part, I could never understand how anyone possessing a masterly skill in bullion and coin, and a knowledge of the terms and conditions of a scientific standard for monetary purposes, could by any possibility advocate local dual standards or bi-metallism.

Mr. C.—I wish you would tell us, Mesites, whether you think this subject of a country's monetary system is a proper one for international bargain and settlement. I should suppose that in this matter, if in any, each country should act quite independently.

Mr. E.—I take your view. A monetary system for people must be the outgrowth of their wants, trade, and civilization. It would be as unwise to give the East Indian gold as to give the American Indian silver. Neither of them are fit for the change. The system must be that which is most suitable to the state of the people, and not such as that upon which you think you can best regulate your interchanges with them. In the matter of currency, countries never have thought of other countries. The outcry for an universal coin at this time evidences this. When Germany had the opportunity to assimilate her gold currency to that of the British Isles she deliberately made her 20-mark piece of 110·6268 grains of fine gold, constrained by local circumstances, perhaps, the sovereign having 113·0016 grains of fine gold: the German alloy one-tenth, the alloy in the sovereign one-twelfth. The soundest policy is that each country should take care of its own monetary system, and let other countries take care of theirs. As for an universal coin, any child who has learned the use of Norman's Exchange Calculus does not require such a coin.

Mr. M.—It is getting late, friends, and we must be going to business. But before we leave give us, Mesites, if you will, your views in a summary.

Mr. E.—At your request, Monnummus, I will sum up my views very shortly.

I. Monetary systems must differ as the peculiarities, habits, and civilization of different peoples differ. One country may learn of another, and one system may be thought to be the best to which a well-advanced people could attain ; but changes must be slow and guided by sound views of the functions of money. That system which is best suited to the wants of the people for their internal interchanges must be first thought of, and must not be changed out of consideration for their international interchanges, until the proposed change suits equally well both descriptions of interchanges.

II. A country's monetary system is not a subject for international discussion.

III. With regard to four monetary systems:—

a. A standard of intrinsic value, as intermediary, without any credit instruments.

b. A standard of credit instruments such as State notes, as intermediary, with intrinsically valuable tokens.

c. A standard of intrinsic value with metal and credit tokens, the credit tokens convertible into the standard substance without question or delay for the weight represented.

d. A standard partly of intrinsic and partly of fictitious value, with metal and credit tokens,

the tokens convertible either into the intrinsically valuable substance or the substance of fictitious value at the option of the payer, without question or delay for the weight of intrinsically valuable substance, or the weight of the substance of fictitious value, both being represented under one denomination on the instrument to be paid.

I do not think that anyone can question the definition under *d* as being an accurate definition of bi-metallism. My opinion is that the world's transactions have outgrown the system *a*. The miseries people have suffered from inconvertible paper are stamped upon the world's history and sufficiently condemn it, *b*. That described under *c* is the only scientific system. Bi-metallism is described under *d*.

The object of our colloquy has been to show the error of this system and the damages to which the British Isles would be exposed if it were universally practised.

Mr. M.—I remember seeing in the *London Chamber of Commerce Journal*, not long ago, an instance of the reception of fictitious silver coins in Bombay from the head of the Persian Gulf, upon which I thought convincing reasons could be based against an universal coin. I am confident that each country should take care of its own coinage and monetary system, and that neither are subjects for international arrangement.

Mr. C.—Well, Mesites, there are no longer mysteries of your craft. I am glad that you do not object to the

public sharing in the knowledge you have so long had, but of which they are ignorant. It is evident that the key of the knowledge of the Science of Money is in the possession of "a masterly skill in bullion and coin." As there are writings which teach this skill, it shall be my effort to obtain it.

Mr. M.—If I may judge by my own experience, I am sure that anyone of ordinary intelligence can acquire this skill. Such as do succeed will join me in insisting upon the construction of a science primer of money. Also instruction on the subject to children with geography, for it is of more importance than the colour of the hair of the people of the country about which they may be learning. The rudiments of the subject are much easier to learn than the multiplication table. Good morning, friends.

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